

**APPENDIX E**

**SLUG TESTING METHODOLOGY AND RESULTS**

## **1.0 Purpose**

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The purpose of this appendix is to determine the hydraulic conductivity of aquifer materials in the vicinity of 7 selected monitoring wells at Range J, Parcel 202(7) based on slug tests conducted in November 2001. The following wells were tested:

Shallow water-bearing zone (Zone A):

RJR-202-MW27

RJR-202-MW10

Intermediate water-bearing zone (Zone B):

RJR-202-MW11

RJR-202-MW15

RJR-202-MW22

Deep water-bearing zone (Zone C):

RJR-202-MW28

RJR-202-MW14.

## **2.0 Field Procedures**

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Slug tests were carried out at each of the wells listed above using the methodology specified in Section 5.4.1 of the *Draft Installation-Wide Sampling and Analysis Plan* (SAP) (IT, 2002), slug tests were also performed by SAIC at RJR-202-MW03 in May 1995. Two slug tests were carried out at each well, a rising head test and a falling head test, unless the static water level measured was below the top of the screened interval, in which case only a rising head test was carried out.

At the start of the tests, the monitoring well cap was removed and the monitoring well air headspace was surveyed using a photoionization detector. The depth to water and total depth of the well were measured using a depth to water level indicator. The MiniTroll™ pressure transducer/data logger connected to a laptop computer running Super Slug® (Starpoint Software, Inc. 1994) was lowered into the well to a depth that would allow a 10-foot slug to be lowered so that the top of the slug was 1-foot below the static water level and the bottom of the slug was not touching the transducer/data logger. A 10-foot slug was lowered into the well so that it was just above the static water level. The well was allowed to return to its static water level before proceeding with the falling head test. The transducer/data logger was activated and the slug was

lowered into the well so that its top was at least 1-foot below the static water level and bottom not touching the transducer/data logger. Data was logged until the water level returned to within 0.1-feet of static water level. The rising head test was carried out by activating the data logger as the slug was removed from the well. Data was logged until the water level returned to within 0.1-feet of static water level.

### **3.0 Analysis Method**

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The computer program Super Slug® (Starpoint Software, Inc. 1994) was utilized to analyze the slug test data. The program is a recently developed window version numerical tool specifically designed for slug test analysis. A unique feature of this program is its ability to automatically filter unusable data (noise signal); also, the software adjusts test data so that the s-t curve begins at the maximum water level displacement. It also offers versatile graphic capabilities and three commonly used slug test analysis methods for selection by users, including Bouwer and Rice (1976), Cooper, Bredehoeft and Papadopoulos (1967), and Hvorslev (1951). Additionally, Super Slug® allows for more customizable analyses than other commercially available programs by offering various type curve matching and supporting various input/output units.

Three water-bearing zones (shallow [Zone A], intermediate [Zone B], and deep [Zone C]) have been identified for the areas where aquifer tests were conducted. Based on the screen interval, two wells tested are in the shallow zone, three in the intermediate zone and two in the deep zone.

### **4.0 Theory**

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The Bouwer and Rice (1976) method for unconfined aquifers is based on the following equations:

$$K = \left[ \frac{r_c^2 \ln(R_e / r_w)}{2 L_{scr}} \right] \frac{1}{t} \ln \frac{H_o}{H_t}$$

where:

- |                |   |                                       |
|----------------|---|---------------------------------------|
| K              | = | Aquifer hydraulic conductivity        |
| r <sub>c</sub> | = | Radius of the well casing             |
| t              | = | Time since slug removal or injections |
| H <sub>t</sub> | = | Head in well at time t                |

- $H_0$  = Initial head change from static water level  
 $R_e$  = Radius of influence of the test  
 $r_w$  = Effective radius of the well (radius of well and gravel pack)  
 $L_{scr}$  = Length of the well screen or open hole.

For partial penetration scenarios, the equation (2) can be used to calculate the radius of influence  $R_e$ :

$$\ln \frac{R_e}{r_w} = \left[ \frac{1.1}{\ln(Z/r_w)} + \frac{A + B \ln[(D-Z)/r_w]}{L_{scr}/r_w} \right]^{-1},$$

For fully penetrating wells using equation (3):

$$\ln \frac{R_e}{r_w} = \left[ \frac{1.1}{\ln(Z/r_w)} + \frac{C}{L_{scr}/r_w} \right]^{-1}$$

where:

- $D$  = Aquifer saturated thickness  
 $Z$  = Height of water column in the well.

Super Slug® automatically determines A, B, and C based on the amount of penetration of the aquifer by the well. Super Slug® automatically determines if the well is fully or partially penetrating and selects the proper parameters. If the well is greater than 95 percent fully penetrating, Super Slug® will assume full penetration and use equation (3).

When water level fluctuations occur within the screened interval of the well, the term  $r$  should be adjusted to account for the filter pack and the larger borehole size (after Bouwer, 1989) using the equation below:

$$r_{cadj} = [r_c^2 + n(r_w^2 - r_c^2)]^{1/2}$$

where:

- $n$  = Filter pack porosity (assumed 30 %).

Cooper, Bredehoeft and Papadopoulos' (1967) method is developed for use in confined aquifers that are fully penetrated by the well screen. A series of type curves is plotted semi-logarithmically, with F (alpha, beta) plotted arithmetically on the vertical axis, and beta plotted logarithmically on the horizontal axis. A different curve is plotted for each selected value of alpha.

Time and Head Ratio values are plotted semi-logarithmically to the same scale as the type curves. Head Ratio is plotted arithmetically on the vertical scale; also, a log of time is plotted on the horizontal scale. The data is fit to a type curve, and a value of alpha is estimated.

When the match is indicated, Super Slug<sup>®</sup> determines the match point of F (alpha, beta) and beta for the value of time = 0.1 days and head ratio = 0.5. These match points will be indicated with the results of the calculations.

Using Equation 1 below, aquifer transmissivity is determined from the values of  $t = 0.1$  and the beta value calculated from the match curve:

$$\beta = T\tau/r^2c \quad \text{Eq. 1}$$

where:

- $T$  = Aquifer transmissivity
- $t$  = Time since slug removal or injection
- $r_c$  = Radius of well casing.

Using Equation 2 below, storativity is calculated from the value of alpha estimated by the user:

$$\alpha = r_w^2 S / r_c^2 c \quad \text{Eq. 2}$$

where:

- $S$  = Aquifer storativity
- $r_w$  = Radius of well casing
- $r_c$  = Radius of well casing.

Because of the similar shape of the type curves, it may be difficult to obtain a unique match for one type curve, especially as alpha becomes small. Papadopoulos et al. (1973) state that for  $\alpha < 10^{-5}$ ,

if the error in the chosen alpha is within two orders of magnitude of its actual value, the error in the determined transmissivity would be less than 30 percent.

## ***5.0 Assumptions***

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The Bouwer and Rice (1976) slug test analysis method for unconfined aquifers is based on the following assumptions:

- The aquifer is homogeneous, isotropic and unconfined
- Drawdown is negligible compared to aquifer thickness
- Flow in the unsaturated zone is negligible
- Well losses are negligible.

Cooper, Bredehoeft and Papadopoulos' (1967) method for confined aquifers is based on the following assumptions:

- Aquifer has infinite areal extent
- Aquifer is homogeneous, isotropic and of uniform thickness
- Aquifer's potentiometric surface is initially horizontal
- A volume of water, V, is injected or discharged from the well instantaneously
- Test well is fully penetrating
- Flow to the test well is horizontal.

These assumptions represent the ideal conditions in which the calculations are exact and precise while any deviation from these assumptions, often encountered in the field conditions, will result in the testing results being approximate.

## ***6.0 Results***

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Both falling and rising tests were conducted in seven selected wells in November 2001. A rising test was also carried out on one well in May 1995 by SAIC. Table 1 summarizes the conditions under which the tests were conducted including depth to groundwater, the total well depth, and the geometric data of each well tested. The calculated hydraulic conductivity (K) and transmissivity (T) values are summarized in Table 2.

In the shallow water-bearing zone (Zone A), the Bouwer and Rice (1976) method for unconfined aquifers was chosen to analyze the test data for RJR-202-MW10 and RJR-202-MW27, this

method was also used by SAIC in order to analyze the test data for RJR-202-MW03. The hydraulic conductivity values in this zone range from 1.04 ft/day at RJR-202-MW10 (rising test) to 15.5 ft/day at RJR-202-MW27 (falling test) with a geometric mean of 3.04ft/day.

In the intermediate water-bearing zone (Zone B), the Cooper, Bredehoeft and Papadopoulos (1967) method for confined aquifers was utilized to analyze the test data for RJR-202-MW11, RJR-202-MW15 and RJR-202-MW22. The hydraulic conductivity values in this zone range from 0.161 ft/day at RJR-202-MW22 (falling test) to 7.59 ft/day at RJR-202-MW15 (rising test) with a geometric mean of 1.66 ft/day.

In the deep water-bearing zone (Zone C), the Bouwer and Rice (1976) method for unconfined aquifers was chosen to analyze the test data for RJR-202-MW14 and RJR-202-MW28. The hydraulic conductivity values in this zone range from 4.02 ft/day at RJR-202-MW14 (rising test) to 9.35 ft/day at RJR-202-MW28 (falling test) with a geometric mean of 6.52 ft/day.

## **7.0 References**

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Bouwer, H. and Rice, R. C., 1976, *A Slug Test Method for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells*, Water Resources Research, Vol. 12, No. 3, pp. 423-428.

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Cooper, H. H., Bredehoeft, J. D. and Papadopoulos, I. S., 1967, *Response of a Finite Diameter Well to an Instantaneous Change of Water*, Water Resources Research, Vol. 3, No. 1, pp. 263-269.

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Hvorslev, 1951, *Time Lag and Soil Permeability in Ground Water Observations*, US Army Corps of Engineers, Waterways Experiment Station, Washington DC., Bulleting No. 36.

IT Corporation (IT), 2002, *Draft Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama*, Revision 3, February.

Papadopolos, S. S., Bredehoeft, J. D., and Cooper, Jr. H. H., 1973, *On the Analysis of "Slug Test" Data*, Water Resources Research, Vol. 9, No. 4.

Table 1

Summary of Monitoring Well Geometry Data  
Range J - Pelham Range, Parcel 202 (7)  
Fort McClellan, Calhoun County, AL

Well No.	Water Level (TOC) (ft)	Total Depth (TOC) (ft)	Water-Bearing Zone	D (Assumed)	r <sub>c</sub> (in)	r <sub>w</sub> (in)	L <sub>scr</sub> (ft)	Z (ft)
RJR-202-MW03	60.05	70	A	9.95	2	5	15.7	9.95
RJR-202-MW10	72.1	96	A	23.9	2	5	10	23.9
RJR-202-MW27	66.6	95	A	28.4	2	5	10	28.4
RJR-202-MW11	71.1	132.2	B	56	2	5	15	61.1
RJR-202-MW15	72.2	138.5	B	19	2	3.94	10	66.3
RJR-202-MW22	70.65	127.5	B	50	2	4.5	9.5	56.85
RJR-202-MW14	58.4	169.7	C	111.3	2	4.25	15	111.3
RJR-202-MW28	67.6	177.5	C	109.9	2	3.94	10	109.9

Note: D --- Aquifer saturated thickness (assumed)  
r<sub>c</sub> --- Radius of well casing  
r<sub>w</sub> --- Radius of boring  
L<sub>scr</sub> --- Length of saturated well screen  
Z --- Static height of water in well  
n --- Porosity of filter pack (Assumed to be 30 percent. Porosities of unconsolidated sand range from 25 to 50 percent [Freeze and Cherry, 1979] )

**Table 2**  
**Summary of Hydraulic Conductivities**  
**Range J - Pelham Range, Parcel 202 (7)**  
**Fort McClellan, Calhoun County, AL**

Well No.	Date Tested	Aquifer Response	Saturated Aquifer Thickness (Assumed)	Test Type	Transmisivities T (ft <sup>2</sup> /day)	Hydraulic Conductivities K (ft/min)	Hydraulic Conductivities K (cm/sec)	Hydraulic Conductivities K (ft/day)			
<b>Zone A</b>											
RJR-202-MW03	5/1/1995	Unconfined	9.95	Rising	1.10E+01	7.66E-04	3.89E-04	1.10E+00			
RJR-202-MW10	11/27/2001	Unconfined	23.90	Falling	3.63E+01	1.09E-03	5.54E-04	1.57E+00			
				Rising	2.49E+01	7.24E-04	3.68E-04	1.04E+00			
RJR-202-MW27	11/27/2001	Unconfined	28.40	Falling	1.69E+02	1.08E-02	5.47E-03	1.55E+01			
				Rising	2.65E+02	6.48E-03	3.29E-03	9.33E+00			
<b>Maximum</b>					2.65E+02	1.08E-02	5.47E-03	1.55E+01			
<b>Minimum</b>					1.10E+01	7.24E-04	3.68E-04	1.04E+00			
<b>Geometric Mean</b>					5.36E+01	2.11E-03	1.07E-03	3.04E+00			
<b>Zone B</b>											
RJR-202-MW11	11/27/2001	Confined	56.00	Falling	1.66E+02	2.06E-03	1.05E-03	2.97E+00			
				Rising	1.99E+02	2.46E-03	1.25E-03	3.55E+00			
RJR-202-MW15	11/27/2001	Confined	19.00	Falling	1.39E+02	5.09E-03	2.59E-03	7.32E+00			
				Rising	1.44E+02	5.27E-03	2.68E-03	7.59E+00			
RJR-202-MW22	11/27/2001	Confined	50.00	Falling	8.04E+00	1.12E-04	5.67E-05	1.61E-01			
				Rising	1.11E+01	1.54E-04	7.82E-05	2.22E-01			
<b>Maximum</b>					1.99E+02	5.27E-03	2.68E-03	7.59E+00			
<b>Minimum</b>					8.04E+00	1.12E-04	5.67E-05	1.61E-01			
<b>Geometric Mean</b>					6.24E+01	1.15E-03	5.86E-04	1.66E+00			
<b>Zone C</b>											
RJR-202-MW14	11/27/2001	Unconfined	111.30	Falling	7.18E+02	4.48E-03	2.28E-03	6.45E+00			
				Rising	2.57E+02	2.79E-03	1.42E-03	4.02E+00			
RJR-202-MW28	11/27/2001	Unconfined	109.90	Falling	1.03E+03	6.49E-03	3.30E-03	9.35E+00			
				Rising	8.21E+02	5.19E-03	2.64E-03	7.47E+00			
<b>Maximum</b>					1.03E+03	6.49E-03	3.30E-03	9.35E+00			
<b>Minimum</b>					2.57E+02	2.79E-03	1.42E-03	4.02E+00			
<b>Geometric Mean</b>					6.28E+02	4.53E-03	2.30E-03	6.52E+00			

Notes: 1 Saturated Aquifer Thickness

For a confined Aquifer, this is the distance from the base of the upper confining unit to the top of the lower confining unit.

For an unconfined aquifer, this is the distance from the water table to the top of the lower confining unit.

2 Analysis Method

Cooper, Bredehoeft, Papadopoulos (1967) method is used for the well with confined aquifers response.

Bouwer and Rice (1976) method is used for the well with unconfined aquifers response.

**ATTACHMENT I**

**TIME VERSUS DRAWDOWN DATA  
FIELD ACTIVITY DAILY LOGS**

## **TIME VERSUS DRAWDOWN DATA**

## Rising Head Test

Site Name: Fort McClellan  
Location: Parcel 202 (7)  
Test Date: 11/27/01  
Import File: C:\Documents and Settings\jli\My Documents\Projects\FTMA\202mw10r.txt

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Well Label: RJR-202-MW10  
Aquifer Thickness: 23.9 feet  
Screen Length: 10. feet  
Casing Radius: 2. inches  
Effective Radius: 5. inches  
Static Water Level: 0. feet  
Water Table to Screen Bottom: 23.9 feet  
Anisotropy Ratio: 1.  
Time Adjustment: 1.2 Seconds

Test starts with trial 4

There are 127 time and drawdown measurements

Maximum head is 0.803 feet

Minimum head is -3.e-003 feet

Trial	Time (minutes)	Adjusted Time (minutes)	Drawdown (feet)	Head (feet)	Head Ratio
1	0.	-2.e-002	0.252	0.252	0.3138
2	5.e-003	-1.5e-002	0.267	0.267	0.3325
3	1.e-002	-1.e-002	0.387	0.387	0.4819
4	1.5e-002	-5.e-003	0.678	0.678	0.8443
5	2.e-002	0.	0.803	0.803	1.
6	2.5e-002	5.e-003	0.798	0.798	0.9938
7	3.e-002	1.e-002	0.798	0.798	0.9938
8	3.5e-002	1.5e-002	0.796	0.796	0.9913
9	4.e-002	2.e-002	0.793	0.793	0.9875
10	4.5e-002	2.5e-002	0.796	0.796	0.9913
11	5.e-002	3.e-002	0.796	0.796	0.9913
12	5.5e-002	3.5e-002	0.791	0.791	0.9851
13	6.e-002	4.e-002	0.791	0.791	0.9851
14	6.5e-002	4.5e-002	0.789	0.789	0.9826
15	7.e-002	5.e-002	0.786	0.786	0.9788
16	7.5e-002	5.5e-002	0.786	0.786	0.9788
17	8.e-002	6.e-002	0.781	0.781	0.9726
18	8.48e-002	6.48e-002	0.784	0.784	0.9763
19	9.e-002	7.e-002	0.784	0.784	0.9763

20	9.5e-002	7.5e-002	0.781	0.781	0.9726
21	0.1	8.e-002	0.781	0.781	0.9726
22	0.1058	8.58e-002	0.779	0.779	0.9701
23	0.112	9.2e-002	0.771	0.771	0.9601
24	0.1185	9.85e-002	0.771	0.771	0.9601
25	0.1255	0.1055	0.771	0.771	0.9601
26	0.1328	0.1128	0.769	0.769	0.9577
27	0.1407	0.1207	0.767	0.767	0.9552
28	0.149	0.129	0.767	0.767	0.9552
29	0.1578	0.1378	0.764	0.764	0.9514
30	0.167	0.147	0.762	0.762	0.9489
31	0.177	0.157	0.762	0.762	0.9489
32	0.1875	0.1675	0.754	0.754	0.939
33	0.1985	0.1785	0.764	0.764	0.9514
34	0.2102	0.1902	0.752	0.752	0.9365
35	0.2227	0.2027	0.742	0.742	0.924
36	0.2358	0.2158	0.747	0.747	0.9303
37	0.2498	0.2298	0.745	0.745	0.9278
38	0.2647	0.2447	0.742	0.742	0.924
39	0.2803	0.2603	0.734	0.734	0.9141
40	0.297	0.277	0.734	0.734	0.9141
41	0.3147	0.2947	0.727	0.727	0.9054
42	0.3333	0.3133	0.725	0.725	0.9029
43	0.3532	0.3332	0.727	0.727	0.9054
44	0.3742	0.3542	0.715	0.715	0.8904
45	0.3963	0.3763	0.71	0.71	0.8842
46	0.4198	0.3998	0.71	0.71	0.8842
47	0.4447	0.4247	0.703	0.703	0.8755
48	0.4697	0.4497	0.698	0.698	0.8692
49	0.4963	0.4763	0.695	0.695	0.8655
50	0.5247	0.5047	0.69	0.69	0.8593
51	0.5547	0.5347	0.683	0.683	0.8506
52	0.5863	0.5663	0.678	0.678	0.8443
53	0.6213	0.6013	0.673	0.673	0.8381
54	0.6578	0.6378	0.668	0.668	0.8319
55	0.6963	0.6763	0.664	0.664	0.8269
56	0.738	0.718	0.656	0.656	0.8169
57	0.7813	0.7613	0.649	0.649	0.8082
58	0.828	0.808	0.644	0.644	0.802
59	0.8763	0.8563	0.636	0.636	0.792
60	0.928	0.908	0.627	0.627	0.7808

61	0.983	0.963	0.619	0.619	0.7709
62	1.041	1.021	0.614	0.614	0.7646
63	1.103	1.083	0.602	0.602	0.7497
64	1.168	1.148	0.592	0.592	0.7372
65	1.238	1.218	0.587	0.587	0.731
66	1.311	1.291	0.578	0.578	0.7198
67	1.39	1.37	0.568	0.568	0.7073
68	1.473	1.453	0.543	0.543	0.6762
69	1.561	1.541	0.543	0.543	0.6762
70	1.655	1.635	0.541	0.541	0.6737
71	1.753	1.733	0.524	0.524	0.6526
72	1.858	1.838	0.512	0.512	0.6376
73	1.968	1.948	0.499	0.499	0.6214
74	2.085	2.065	0.487	0.487	0.6065
75	2.21	2.19	0.48	0.48	0.5978
76	2.341	2.321	0.463	0.463	0.5766
77	2.481	2.461	0.45	0.45	0.5604
78	2.63	2.61	0.438	0.438	0.5455
79	2.786	2.766	0.428	0.428	0.533
80	2.953	2.933	0.409	0.409	0.5093
81	3.13	3.11	0.394	0.394	0.4907
82	3.316	3.296	0.374	0.374	0.4658
83	3.515	3.495	0.365	0.365	0.4545
84	3.725	3.705	0.35	0.35	0.4359
85	3.946	3.926	0.33	0.33	0.411
86	4.181	4.161	0.318	0.318	0.396
87	4.43	4.41	0.301	0.301	0.3748
88	4.693	4.673	0.288	0.288	0.3587
89	4.973	4.953	0.271	0.271	0.3375
90	5.27	5.25	0.254	0.254	0.3163
91	5.583	5.563	0.242	0.242	0.3014
92	5.915	5.895	0.222	0.222	0.2765
93	6.266	6.246	0.21	0.21	0.2615
94	6.64	6.62	0.195	0.195	0.2428
95	7.035	7.015	0.183	0.183	0.2279
96	7.453	7.433	0.169	0.169	0.2105
97	7.896	7.876	0.156	0.156	0.1943
98	8.366	8.346	0.141	0.141	0.1756
99	8.865	8.845	0.129	0.129	0.1606
100	9.391	9.371	0.117	0.117	0.1457
101	9.95	9.93	0.102	0.102	0.127

102	10.54	10.52	9.2e-002	9.2e-002	0.1146
103	11.17	11.15	8.3e-002	8.3e-002	0.1034
104	11.83	11.81	7.5e-002	7.5e-002	9.34e-002
105	12.53	12.51	6.6e-002	6.6e-002	8.219e-002
106	13.28	13.26	6.1e-002	6.1e-002	7.597e-002
107	14.07	14.05	5.1e-002	5.1e-002	6.351e-002
108	14.91	14.89	4.6e-002	4.6e-002	5.729e-002
109	15.79	15.77	3.9e-002	3.9e-002	4.857e-002
110	16.73	16.71	3.4e-002	3.4e-002	4.234e-002
111	17.72	17.7	3.1e-002	3.1e-002	3.861e-002
112	18.78	18.76	2.4e-002	2.4e-002	2.989e-002
113	19.89	19.87	2.2e-002	2.2e-002	2.74e-002
114	21.07	21.05	1.9e-002	1.9e-002	2.366e-002
115	22.32	22.3	1.7e-002	1.7e-002	2.117e-002
116	23.65	23.63	1.2e-002	1.2e-002	1.494e-002
117	25.05	25.03	1.2e-002	1.2e-002	1.494e-002
118	26.54	26.52	1.2e-002	1.2e-002	1.494e-002
119	28.12	28.1	4.e-003	4.e-003	4.981e-003
120	29.79	29.77	7.e-003	7.e-003	8.717e-003
121	31.55	31.53	2.e-003	2.e-003	2.491e-003
122	33.43	33.41	2.e-003	2.e-003	2.491e-003
123	35.41	35.39	-3.e-003	-3.e-003	-3.736e-003
124	37.51	37.49	2.e-003	2.e-003	2.491e-003
125	39.74	39.72	2.e-003	2.e-003	2.491e-003
126	42.1	42.08	2.e-003	2.e-003	2.491e-003
127	44.6	44.58	0.	0.	0.

## Falling Head Test

Site Name: Fort McClellan  
Location: Parcel 202 (7)  
Test Date: 11/27/01  
Import File: C:\Documents and Settings\ji\My Documents\Projects\FTMA\202mw10f.txt

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Well Label: RJR-202-MW10  
Aquifer Thickness: 23.9 feet  
Screen Length: 10. feet  
Casing Radius: 2. inches  
Effective Radius: 5. inches  
Static Water Level: 0. feet  
Water Table to Screen Bottom: 23.9 feet  
Anisotropy Ratio: 1.  
Time Adjustment: 1.8 Seconds

Test starts with trial 6

There are 122 time and drawdown measurements

Maximum head is 2.688 feet

Minimum head is -2.484 feet

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Trial	Time (minutes)	Adjusted Time (minutes)	Drawdown (feet)	Head (feet)	Head Ratio
1	0.	-3.e-002	-1.2e-002	1.2e-002	4.464e-003
2	5.e-003	-2.5e-002	-1.4e-002	1.4e-002	5.208e-003
3	1.e-002	-2.e-002	-1.7e-002	1.7e-002	6.324e-003
4	1.5e-002	-1.5e-002	-1.641	1.641	0.6105
5	2.e-002	-1.e-002	0.696	-0.696	-0.2589
6	2.5e-002	-5.e-003	2.484	-2.484	-0.9241
7	3.e-002	0.	-2.688	2.688	1.
8	3.5e-002	5.e-003	-0.327	0.327	0.1217
9	4.e-002	1.e-002	-1.33	1.33	0.4948
10	4.5e-002	1.5e-002	-0.339	0.339	0.1261
11	5.e-002	2.e-002	-0.692	0.692	0.2574
12	5.5e-002	2.5e-002	-1.051	1.051	0.391
13	6.e-002	3.e-002	-0.914	0.914	0.34
14	6.5e-002	3.5e-002	-0.501	0.501	0.1864
15	7.e-002	4.e-002	-1.066	1.066	0.3966
16	7.5e-002	4.5e-002	-0.804	0.804	0.2991
17	8.e-002	5.e-002	-0.841	0.841	0.3129
18	8.48e-002	5.48e-002	-0.926	0.926	0.3445
19	9.e-002	6.e-002	-0.826	0.826	0.3073

20	9.5e-002	6.5e-002	-0.865	0.865	0.3218
21	0.1	7.e-002	-0.841	0.841	0.3129
22	0.1058	7.58e-002	-0.843	0.843	0.3136
23	0.112	8.2e-002	-0.841	0.841	0.3129
24	0.1185	8.85e-002	-0.853	0.853	0.3173
25	0.1255	9.55e-002	-0.831	0.831	0.3092
26	0.1328	0.1028	-0.846	0.846	0.3147
27	0.1407	0.1107	-0.777	0.777	0.2891
28	0.149	0.119	-0.838	0.838	0.3118
29	0.1578	0.1278	-0.863	0.863	0.3211
30	0.167	0.137	-0.87	0.87	0.3237
31	0.177	0.147	-0.848	0.848	0.3155
32	0.1875	0.1575	-0.846	0.846	0.3147
33	0.1985	0.1685	-0.846	0.846	0.3147
34	0.2102	0.1802	-0.843	0.843	0.3136
35	0.2227	0.1927	-0.841	0.841	0.3129
36	0.2358	0.2058	-0.834	0.834	0.3103
37	0.2498	0.2198	-0.829	0.829	0.3084
38	0.2647	0.2347	-0.831	0.831	0.3092
39	0.2803	0.2503	-0.824	0.824	0.3065
40	0.297	0.267	-0.819	0.819	0.3047
41	0.3147	0.2847	-0.821	0.821	0.3054
42	0.3333	0.3033	-0.812	0.812	0.3021
43	0.3532	0.3232	-0.807	0.807	0.3002
44	0.3742	0.3442	-0.804	0.804	0.2991
45	0.3963	0.3663	-0.797	0.797	0.2965
46	0.4198	0.3898	-0.794	0.794	0.2954
47	0.4447	0.4147	-0.792	0.792	0.2946
48	0.4697	0.4397	-0.792	0.792	0.2946
49	0.4963	0.4663	-0.782	0.782	0.2909
50	0.5247	0.4947	-0.777	0.777	0.2891
51	0.5547	0.5247	-0.763	0.763	0.2839
52	0.5863	0.5563	-0.765	0.765	0.2846
53	0.6213	0.5913	-0.758	0.758	0.282
54	0.6578	0.6278	-0.753	0.753	0.2801
55	0.6963	0.6663	-0.748	0.748	0.2783
56	0.738	0.708	-0.741	0.741	0.2757
57	0.7813	0.7513	-0.731	0.731	0.2719
58	0.828	0.798	-0.724	0.724	0.2693
59	0.8763	0.8463	-0.719	0.719	0.2675
60	0.928	0.898	-0.709	0.709	0.2638

61	0.983	0.953	-0.699	0.699	0.26
62	1.041	1.011	-0.692	0.692	0.2574
63	1.103	1.073	-0.682	0.682	0.2537
64	1.168	1.138	-0.675	0.675	0.2511
65	1.238	1.208	-0.663	0.663	0.2467
66	1.311	1.281	-0.653	0.653	0.2429
67	1.39	1.36	-0.641	0.641	0.2385
68	1.473	1.443	-0.631	0.631	0.2347
69	1.561	1.531	-0.619	0.619	0.2303
70	1.655	1.625	-0.604	0.604	0.2247
71	1.753	1.723	-0.594	0.594	0.221
72	1.858	1.828	-0.577	0.577	0.2147
73	1.968	1.938	-0.565	0.565	0.2102
74	2.085	2.055	-0.55	0.55	0.2046
75	2.21	2.18	-0.536	0.536	0.1994
76	2.341	2.311	-0.523	0.523	0.1946
77	2.481	2.451	-0.509	0.509	0.1894
78	2.63	2.6	-0.494	0.494	0.1838
79	2.786	2.756	-0.474	0.474	0.1763
80	2.953	2.923	-0.46	0.46	0.1711
81	3.13	3.1	-0.44	0.44	0.1637
82	3.316	3.286	-0.425	0.425	0.1581
83	3.515	3.485	-0.406	0.406	0.151
84	3.725	3.695	-0.391	0.391	0.1455
85	3.946	3.916	-0.374	0.374	0.1391
86	4.181	4.151	-0.352	0.352	0.131
87	4.43	4.399	-0.337	0.337	0.1254
88	4.693	4.663	-0.32	0.32	0.119
89	4.973	4.943	-0.301	0.301	0.112
90	5.27	5.24	-0.286	0.286	0.1064
91	5.583	5.553	-0.266	0.266	9.896e-002
92	5.915	5.885	-0.25	0.25	9.301e-002
93	6.266	6.236	-0.23	0.23	8.557e-002
94	6.64	6.61	-0.213	0.213	7.924e-002
95	7.035	7.005	-0.196	0.196	7.292e-002
96	7.453	7.423	-0.184	0.184	6.845e-002
97	7.896	7.866	-0.171	0.171	6.362e-002
98	8.366	8.336	-0.154	0.154	5.729e-002
99	8.865	8.835	-0.142	0.142	5.283e-002
100	9.391	9.361	-0.13	0.13	4.836e-002
101	9.95	9.92	-0.115	0.115	4.278e-002

102	10.54	10.51	-9.8e-002	9.8e-002	3.646e-002
103	11.17	11.14	-9.3e-002	9.3e-002	3.46e-002
104	11.83	11.8	-8.1e-002	8.1e-002	3.013e-002
105	12.53	12.5	-7.6e-002	7.6e-002	2.827e-002
106	13.28	13.25	-6.1e-002	6.1e-002	2.269e-002
107	14.07	14.04	-5.4e-002	5.4e-002	2.009e-002
108	14.91	14.88	-4.7e-002	4.7e-002	1.749e-002
109	15.79	15.76	-3.7e-002	3.7e-002	1.376e-002
110	16.73	16.7	-3.2e-002	3.2e-002	1.19e-002
111	17.72	17.69	-2.7e-002	2.7e-002	1.004e-002
112	18.78	18.75	-2.2e-002	2.2e-002	8.185e-003
113	19.89	19.86	-1.7e-002	1.7e-002	6.324e-003
114	21.07	21.04	-1.5e-002	1.5e-002	5.58e-003
115	22.32	22.29	-1.e-002	1.e-002	3.72e-003
116	23.65	23.62	-8.e-003	8.e-003	2.976e-003
117	25.05	25.02	-8.e-003	8.e-003	2.976e-003
118	26.54	26.51	-3.e-003	3.e-003	1.116e-003
119	28.12	28.09	-8.e-003	8.e-003	2.976e-003
120	29.79	29.76	-5.e-003	5.e-003	1.86e-003
121	31.55	31.52	0.	0.	0.
122	33.43	33.4	0.	0.	0.

## Falling Head Test

Site Name: Fort McClellan  
Location: Parcel 202 (7)  
Test Date: 11/27/01  
Import File: C:\Documents and Settings\jli\My Documents\Projects\FTMA\202mw27f.txt

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Well Label: RJR-202-MW27  
Aquifer Thickness: 28.4 feet  
Screen Length: 10. feet  
Casing Radius: 2. inches  
Effective Radius: 5. inches  
Static Water Level: 0. feet  
Water Table to Screen Bottom: 28.4 feet  
Anisotropy Ratio: 1.  
Time Adjustment: 0.9 Seconds

Test starts with trial 3

There are 120 time and drawdown measurements

Maximum head is 5.581 feet

Minimum head is -3.598 feet

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Trial	Time (minutes)	Adjusted Time (minutes)	Drawdown (feet)	Head (feet)	Head Ratio
1	0.	-1.5e-002	0.	0.	0.
2	5.e-003	-1.e-002	-5.e-003	5.e-003	8.959e-004
3	1.e-002	-5.e-003	-1.e-002	1.e-002	1.792e-003
4	1.5e-002	0.	-5.581	5.581	1.
5	2.e-002	5.e-003	3.598	-3.598	-0.6447
6	2.5e-002	1.e-002	-0.271	0.271	4.856e-002
7	3.e-002	1.5e-002	-2.305	2.305	0.413
8	3.5e-002	2.e-002	-1.189	1.189	0.213
9	4.e-002	2.5e-002	-1.321	1.321	0.2367
10	4.5e-002	3.e-002	-0.733	0.733	0.1313
11	5.e-002	3.5e-002	-0.381	0.381	6.827e-002
12	5.5e-002	4.e-002	-1.495	1.495	0.2679
13	6.e-002	4.5e-002	-1.218	1.218	0.2182
14	6.5e-002	5.e-002	-0.868	0.868	0.1555
15	7.e-002	5.5e-002	-0.998	0.998	0.1788
16	7.5e-002	6.e-002	-1.132	1.132	0.2028
17	8.e-002	6.5e-002	-0.929	0.929	0.1665
18	8.48e-002	6.98e-002	-1.012	1.012	0.1813
19	9.e-002	7.5e-002	-0.99	0.99	0.1774

20	9.5e-002	8.e-002	-0.949	0.949	0.17
21	0.1	8.5e-002	-0.956	0.956	0.1713
22	0.1058	9.08e-002	-0.912	0.912	0.1634
23	0.112	9.7e-002	-0.924	0.924	0.1656
24	0.1185	0.1035	-0.922	0.922	0.1652
25	0.1255	0.1105	-0.914	0.914	0.1638
26	0.1328	0.1178	-0.887	0.887	0.1589
27	0.1407	0.1257	-0.868	0.868	0.1555
28	0.149	0.134	-0.853	0.853	0.1528
29	0.1578	0.1428	-0.824	0.824	0.1476
30	0.167	0.152	-0.816	0.816	0.1462
31	0.177	0.162	-0.824	0.824	0.1476
32	0.1875	0.1725	-0.812	0.812	0.1455
33	0.1985	0.1835	-0.77	0.77	0.138
34	0.2102	0.1952	-0.753	0.753	0.1349
35	0.2227	0.2077	-0.733	0.733	0.1313
36	0.2358	0.2208	-0.704	0.704	0.1261
37	0.2498	0.2348	-0.687	0.687	0.1231
38	0.2647	0.2497	-0.667	0.667	0.1195
39	0.2803	0.2653	-0.648	0.648	0.1161
40	0.297	0.282	-0.623	0.623	0.1116
41	0.3147	0.2997	-0.592	0.592	0.1061
42	0.3333	0.3183	-0.577	0.577	0.1034
43	0.3532	0.3382	-0.55	0.55	9.855e-002
44	0.3742	0.3592	-0.53	0.53	9.497e-002
45	0.3963	0.3813	-0.506	0.506	9.066e-002
46	0.4198	0.4048	-0.479	0.479	8.583e-002
47	0.4447	0.4297	-0.457	0.457	8.188e-002
48	0.4697	0.4547	-0.435	0.435	7.794e-002
49	0.4963	0.4813	-0.41	0.41	7.346e-002
50	0.5247	0.5097	-0.386	0.386	6.916e-002
51	0.5547	0.5397	-0.242	0.242	4.336e-002
52	0.5863	0.5713	-0.366	0.366	6.558e-002
53	0.6213	0.6063	-0.339	0.339	6.074e-002
54	0.6578	0.6428	-0.315	0.315	5.644e-002
55	0.6963	0.6813	-0.291	0.291	5.214e-002
56	0.738	0.723	-0.269	0.269	4.82e-002
57	0.7813	0.7663	-0.244	0.244	4.372e-002
58	0.828	0.813	-0.225	0.225	4.032e-002
59	0.8763	0.8613	-0.208	0.208	3.727e-002
60	0.928	0.913	-0.186	0.186	3.333e-002

61	0.983	0.968	-0.166	0.166	2.974e-002
62	1.041	1.026	-0.149	0.149	2.67e-002
63	1.103	1.088	-0.134	0.134	2.401e-002
64	1.168	1.153	-0.112	0.112	2.007e-002
65	1.238	1.223	-0.102	0.102	1.828e-002
66	1.311	1.296	-9.3e-002	9.3e-002	1.666e-002
67	1.39	1.375	-8.e-002	8.e-002	1.433e-002
68	1.473	1.458	-7.3e-002	7.3e-002	1.308e-002
69	1.561	1.546	-6.1e-002	6.1e-002	1.093e-002
70	1.655	1.64	-5.3e-002	5.3e-002	9.497e-003
71	1.753	1.738	-5.1e-002	5.1e-002	9.138e-003
72	1.858	1.843	-4.1e-002	4.1e-002	7.346e-003
73	1.968	1.953	-3.4e-002	3.4e-002	6.092e-003
74	2.085	2.07	-2.9e-002	2.9e-002	5.196e-003
75	2.21	2.195	-2.9e-002	2.9e-002	5.196e-003
76	2.341	2.326	-1.9e-002	1.9e-002	3.404e-003
77	2.481	2.466	-1.e-002	1.e-002	1.792e-003
78	2.63	2.615	-1.2e-002	1.2e-002	2.15e-003
79	2.786	2.771	-1.2e-002	1.2e-002	2.15e-003
80	2.953	2.938	-1.4e-002	1.4e-002	2.509e-003
81	3.13	3.115	-7.e-003	7.e-003	1.254e-003
82	3.316	3.301	-5.e-003	5.e-003	8.959e-004
83	3.515	3.5	-1.e-002	1.e-002	1.792e-003
84	3.725	3.71	-5.e-003	5.e-003	8.959e-004
85	3.946	3.931	-2.e-003	2.e-003	3.584e-004
86	4.181	4.166	-2.e-003	2.e-003	3.584e-004
87	4.43	4.414	0.	0.	0.
88	4.693	4.678	0.	0.	0.
89	4.973	4.958	0.	0.	0.
90	5.27	5.255	2.e-003	-2.e-003	-3.584e-004
91	5.583	5.568	0.	0.	0.
92	5.915	5.9	2.e-003	-2.e-003	-3.584e-004
93	6.266	6.251	2.e-003	-2.e-003	-3.584e-004
94	6.64	6.625	2.e-003	-2.e-003	-3.584e-004
95	7.035	7.02	0.	0.	0.
96	7.453	7.438	1.3e-002	-1.3e-002	-2.329e-003
97	7.896	7.881	1.e-002	-1.e-002	-1.792e-003
98	8.366	8.351	1.e-002	-1.e-002	-1.792e-003
99	8.865	8.85	3.e-003	-3.e-003	-5.375e-004
100	9.391	9.376	3.e-003	-3.e-003	-5.375e-004
101	9.95	9.935	6.e-003	-6.e-003	-1.075e-003

102	10.54	10.53	3.e-003	-3.e-003	-5.375e-004
103	11.17	11.15	5.e-003	-5.e-003	-8.959e-004
104	11.83	11.82	0.	0.	0.
105	12.53	12.52	5.e-003	-5.e-003	-8.959e-004
106	13.28	13.26	5.e-003	-5.e-003	-8.959e-004
107	14.07	14.05	5.e-003	-5.e-003	-8.959e-004
108	14.91	14.89	5.e-003	-5.e-003	-8.959e-004
109	15.79	15.78	0.	0.	0.
110	16.73	16.71	2.e-003	-2.e-003	-3.584e-004
111	17.72	17.71	2.e-003	-2.e-003	-3.584e-004
112	18.78	18.76	2.e-003	-2.e-003	-3.584e-004
113	19.89	19.88	0.	0.	0.
114	21.07	21.06	2.e-003	-2.e-003	-3.584e-004
115	22.32	22.31	0.	0.	0.
116	23.65	23.63	0.	0.	0.
117	25.05	25.04	5.e-003	-5.e-003	-8.959e-004
118	26.54	26.53	0.	0.	0.
119	28.12	28.1	2.e-003	-2.e-003	-3.584e-004
120	29.79	29.77	-2.e-003	2.e-003	3.584e-004

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## Rising Head Test

Site Name: Fort McClellan  
Location: Parcel 202 (7)  
Test Date: 11/27/01  
Import File: C:\Documents and Settings\jli\My Documents\Projects\FTMA\202mw27r.txt

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Well Label: RJR-202-MW27  
Aquifer Thickness: 28.4 feet  
Screen Length: 10. feet  
Casing Radius: 2. inches  
Effective Radius: 5. inches  
Static Water Level: 0. feet  
Water Table to Screen Bottom: 28.4 feet  
Anisotropy Ratio: 1.  
Time Adjustment: 1.5 Seconds

Test starts with trial 5

There are 111 time and drawdown measurements

Maximum head is 1.038 feet

Minimum head is 0. feet

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Trial	Time (minutes)	Adjusted Time (minutes)	Drawdown (feet)	Head (feet)	Head Ratio
1	0.	-2.5e-002	0.443	0.443	0.4268
2	5.e-003	-2.e-002	0.705	0.705	0.6792
3	1.e-002	-1.5e-002	0.624	0.624	0.6012
4	1.5e-002	-1.e-002	0.857	0.857	0.8256
5	2.e-002	-5.e-003	0.923	0.923	0.8892
6	2.5e-002	0.	1.038	1.038	1.
7	3.e-002	5.e-003	0.999	0.999	0.9624
8	3.5e-002	1.e-002	0.982	0.982	0.9461
9	4.e-002	1.5e-002	0.975	0.975	0.9393
10	4.5e-002	2.e-002	0.957	0.957	0.922
11	5.e-002	2.5e-002	0.948	0.948	0.9133
12	5.5e-002	3.e-002	0.933	0.933	0.8988
13	6.e-002	3.5e-002	0.918	0.918	0.8844
14	6.5e-002	4.e-002	0.904	0.904	0.8709
15	7.e-002	4.5e-002	0.894	0.894	0.8613
16	7.5e-002	5.e-002	0.884	0.884	0.8516
17	8.e-002	5.5e-002	0.874	0.874	0.842
18	8.48e-002	5.98e-002	0.865	0.865	0.8333
19	9.e-002	6.5e-002	0.852	0.852	0.8208

20	9.5e-002	7.e-002	0.838	0.838	0.8073
21	0.1	7.5e-002	0.828	0.828	0.7977
22	0.1058	8.08e-002	0.818	0.818	0.7881
23	0.112	8.7e-002	0.801	0.801	0.7717
24	0.1185	9.35e-002	0.796	0.796	0.7669
25	0.1255	0.1005	0.784	0.784	0.7553
26	0.1328	0.1078	0.769	0.769	0.7408
27	0.1407	0.1157	0.754	0.754	0.7264
28	0.149	0.124	0.74	0.74	0.7129
29	0.1578	0.1328	0.725	0.725	0.6985
30	0.167	0.142	0.708	0.708	0.6821
31	0.177	0.152	0.693	0.693	0.6676
32	0.1875	0.1625	0.674	0.674	0.6493
33	0.1985	0.1735	0.661	0.661	0.6368
34	0.2102	0.1852	0.642	0.642	0.6185
35	0.2227	0.1977	0.622	0.622	0.5992
36	0.2358	0.2108	0.605	0.605	0.5829
37	0.2498	0.2248	0.586	0.586	0.5645
38	0.2647	0.2397	0.568	0.568	0.5472
39	0.2803	0.2553	0.549	0.549	0.5289
40	0.297	0.272	0.532	0.532	0.5125
41	0.3147	0.2897	0.507	0.507	0.4884
42	0.3333	0.3083	0.49	0.49	0.4721
43	0.3532	0.3282	0.473	0.473	0.4557
44	0.3742	0.3492	0.449	0.449	0.4326
45	0.3963	0.3713	0.429	0.429	0.4133
46	0.4198	0.3948	0.409	0.409	0.394
47	0.4447	0.4197	0.387	0.387	0.3728
48	0.4697	0.4447	0.363	0.363	0.3497
49	0.4963	0.4713	0.348	0.348	0.3353
50	0.5247	0.4997	0.326	0.326	0.3141
51	0.5547	0.5297	0.309	0.309	0.2977
52	0.5863	0.5613	0.292	0.292	0.2813
53	0.6213	0.5963	0.272	0.272	0.262
54	0.6578	0.6328	0.255	0.255	0.2457
55	0.6963	0.6713	0.235	0.235	0.2264
56	0.738	0.713	0.216	0.216	0.2081
57	0.7813	0.7563	0.196	0.196	0.1888
58	0.828	0.803	0.182	0.182	0.1753
59	0.8763	0.8513	0.164	0.164	0.158
60	0.928	0.903	0.152	0.152	0.1464

61	0.983	0.958	0.135	0.135	0.1301
62	1.041	1.016	0.123	0.123	0.1185
63	1.103	1.078	0.111	0.111	0.1069
64	1.168	1.143	0.101	0.101	9.73e-002
65	1.238	1.213	8.6e-002	8.6e-002	8.285e-002
66	1.311	1.286	7.1e-002	7.1e-002	6.84e-002
67	1.39	1.365	6.9e-002	6.9e-002	6.647e-002
68	1.473	1.448	6.2e-002	6.2e-002	5.973e-002
69	1.561	1.536	5.7e-002	5.7e-002	5.491e-002
70	1.655	1.63	4.9e-002	4.9e-002	4.721e-002
71	1.753	1.728	3.9e-002	3.9e-002	3.757e-002
72	1.858	1.833	3.7e-002	3.7e-002	3.565e-002
73	1.968	1.943	3.7e-002	3.7e-002	3.565e-002
74	2.085	2.06	3.5e-002	3.5e-002	3.372e-002
75	2.21	2.185	2.7e-002	2.7e-002	2.601e-002
76	2.341	2.316	2.2e-002	2.2e-002	2.119e-002
77	2.481	2.456	2.2e-002	2.2e-002	2.119e-002
78	2.63	2.605	2.5e-002	2.5e-002	2.408e-002
79	2.786	2.761	2.e-002	2.e-002	1.927e-002
80	2.953	2.928	2.e-002	2.e-002	1.927e-002
81	3.13	3.105	2.e-002	2.e-002	1.927e-002
82	3.316	3.291	1.5e-002	1.5e-002	1.445e-002
83	3.515	3.49	1.5e-002	1.5e-002	1.445e-002
84	3.725	3.7	2.e-002	2.e-002	1.927e-002
85	3.946	3.921	5.e-003	5.e-003	4.817e-003
86	4.181	4.156	1.e-002	1.e-002	9.634e-003
87	4.43	4.404	1.e-002	1.e-002	9.634e-003
88	4.693	4.668	1.3e-002	1.3e-002	1.252e-002
89	4.973	4.948	1.3e-002	1.3e-002	1.252e-002
90	5.27	5.245	1.e-002	1.e-002	9.634e-003
91	5.583	5.558	1.5e-002	1.5e-002	1.445e-002
92	5.915	5.89	7.e-003	7.e-003	6.744e-003
93	6.266	6.241	1.e-002	1.e-002	9.634e-003
94	6.64	6.615	7.e-003	7.e-003	6.744e-003
95	7.035	7.01	1.e-002	1.e-002	9.634e-003
96	7.453	7.428	1.e-002	1.e-002	9.634e-003
97	7.896	7.871	1.e-002	1.e-002	9.634e-003
98	8.366	8.341	1.e-002	1.e-002	9.634e-003
99	8.865	8.84	1.e-002	1.e-002	9.634e-003
100	9.391	9.366	8.e-003	8.e-003	7.707e-003
101	9.95	9.925	7.e-003	7.e-003	6.744e-003

102	10.54	10.52	7.e-003	7.e-003	6.744e-003
103	11.17	11.14	7.e-003	7.e-003	6.744e-003
104	11.83	11.81	5.e-003	5.e-003	4.817e-003
105	12.53	12.51	5.e-003	5.e-003	4.817e-003
106	13.28	13.25	7.e-003	7.e-003	6.744e-003
107	14.07	14.04	5.e-003	5.e-003	4.817e-003
108	14.91	14.88	2.e-003	2.e-003	1.927e-003
109	15.79	15.77	0.	0.	0.
110	16.73	16.7	0.	0.	0.
111	17.72	17.7	0.	0.	0.

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## Falling Head Test

Site Name: Fort McClellan  
Location: Parcel 202 (7)  
Test Date: 11/27/01  
Import File: C:\Documents and Settings\jli\My Documents\Projects\FTMA\202mw11f.txt

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Well Label: RJR-202-MW11  
Aquifer Thickness: 56. feet  
Screen Length: 15. feet  
Casing Radius: 2. inches  
Effective Radius: 5. inches  
Static Water Level: 0. feet  
Water Table to Screen Bottom: 61.1 feet  
Anisotropy Ratio: 1.  
Time Adjustment: 0.6 Seconds

Test starts with trial 2

There are 104 time and drawdown measurements

Maximum head is 7.826 feet

Minimum head is -0.72 feet

Trial	Time (minutes)	Adjusted Time (minutes)	Drawdown (feet)	Head (feet)	Head Ratio
1	0.	-1.e-002	6.e-003	-6.e-003	-7.667e-004
2	5.e-003	-5.e-003	-4.e-003	4.e-003	5.111e-004
3	1.e-002	0.	-7.826	7.826	1.
4	1.5e-002	5.e-003	-2.274	2.274	0.2906
5	2.e-002	1.e-002	0.72	-0.72	-9.2e-002
6	2.5e-002	1.5e-002	-0.805	0.805	0.1029
7	3.e-002	2.e-002	-1.46	1.46	0.1866
8	3.5e-002	2.5e-002	-1.402	1.402	0.1791
9	4.e-002	3.e-002	-1.19	1.19	0.1521
10	4.5e-002	3.5e-002	-0.717	0.717	9.162e-002
11	5.e-002	4.e-002	-0.809	0.809	0.1034
12	5.5e-002	4.5e-002	-1.181	1.181	0.1509
13	6.e-002	5.e-002	-1.053	1.053	0.1346
14	6.5e-002	5.5e-002	-0.829	0.829	0.1059
15	7.e-002	6.e-002	-0.975	0.975	0.1246
16	7.5e-002	6.5e-002	-0.998	0.998	0.1275
17	8.e-002	7.e-002	-0.913	0.913	0.1167
18	8.48e-002	7.48e-002	-0.965	0.965	0.1233
19	9.e-002	8.e-002	-0.912	0.912	0.1165

20	9.5e-002	8.5e-002	-0.904	0.904	0.1155
21	0.1	9.e-002	-0.916	0.916	0.117
22	0.1058	9.58e-002	-0.894	0.894	0.1142
23	0.112	0.102	-0.884	0.884	0.113
24	0.1185	0.1085	-0.88	0.88	0.1124
25	0.1255	0.1155	-0.874	0.874	0.1117
26	0.1328	0.1228	-0.86	0.86	0.1099
27	0.1407	0.1307	-0.844	0.844	0.1078
28	0.149	0.139	-0.834	0.834	0.1066
29	0.1578	0.1478	-0.812	0.812	0.1038
30	0.167	0.157	-0.799	0.799	0.1021
31	0.177	0.167	-0.791	0.791	0.1011
32	0.1875	0.1775	-0.771	0.771	9.852e-002
33	0.1985	0.1885	-0.759	0.759	9.698e-002
34	0.2102	0.2002	-0.755	0.755	9.647e-002
35	0.2227	0.2127	-0.731	0.731	9.341e-002
36	0.2358	0.2258	-0.719	0.719	9.187e-002
37	0.2498	0.2398	-0.703	0.703	8.983e-002
38	0.2647	0.2547	-0.687	0.687	8.778e-002
39	0.2803	0.2703	-0.673	0.673	8.6e-002
40	0.297	0.287	-0.657	0.657	8.395e-002
41	0.3147	0.3047	-0.637	0.637	8.14e-002
42	0.3333	0.3233	-0.621	0.621	7.935e-002
43	0.3532	0.3432	-0.601	0.601	7.68e-002
44	0.3742	0.3642	-0.579	0.579	7.398e-002
45	0.3963	0.3863	-0.574	0.574	7.335e-002
46	0.4198	0.4098	-0.538	0.538	6.875e-002
47	0.4447	0.4347	-0.516	0.516	6.593e-002
48	0.4697	0.4597	-0.496	0.496	6.338e-002
49	0.4963	0.4863	-0.474	0.474	6.057e-002
50	0.5247	0.5147	-0.454	0.454	5.801e-002
51	0.5547	0.5447	-0.43	0.43	5.495e-002
52	0.5863	0.5763	-0.41	0.41	5.239e-002
53	0.6213	0.6113	-0.386	0.386	4.932e-002
54	0.6578	0.6478	-0.364	0.364	4.651e-002
55	0.6963	0.6863	-0.342	0.342	4.37e-002
56	0.738	0.728	-0.32	0.32	4.089e-002
57	0.7813	0.7713	-0.298	0.298	3.808e-002
58	0.828	0.818	-0.278	0.278	3.552e-002
59	0.8763	0.8663	-0.256	0.256	3.271e-002
60	0.928	0.918	-0.236	0.236	3.016e-002

61	0.983	0.973	-0.218	0.218	2.786e-002
62	1.041	1.031	-0.196	0.196	2.504e-002
63	1.103	1.093	-0.178	0.178	2.274e-002
64	1.168	1.158	-0.16	0.16	2.044e-002
65	1.238	1.228	-0.144	0.144	1.84e-002
66	1.311	1.301	-0.128	0.128	1.636e-002
67	1.39	1.38	-0.112	0.112	1.431e-002
68	1.473	1.463	-0.103	0.103	1.316e-002
69	1.561	1.551	-9.1e-002	9.1e-002	1.163e-002
70	1.655	1.645	-7.9e-002	7.9e-002	1.009e-002
71	1.753	1.743	-6.7e-002	6.7e-002	8.561e-003
72	1.858	1.848	-5.7e-002	5.7e-002	7.283e-003
73	1.968	1.958	-4.7e-002	4.7e-002	6.006e-003
74	2.085	2.075	-3.9e-002	3.9e-002	4.983e-003
75	2.21	2.2	-3.1e-002	3.1e-002	3.961e-003
76	2.341	2.331	-2.5e-002	2.5e-002	3.194e-003
77	2.481	2.471	-1.9e-002	1.9e-002	2.428e-003
78	2.63	2.62	-1.5e-002	1.5e-002	1.917e-003
79	2.786	2.776	-1.1e-002	1.1e-002	1.406e-003
80	2.953	2.943	-7.e-003	7.e-003	8.945e-004
81	3.13	3.12	-3.e-003	3.e-003	3.833e-004
82	3.316	3.306	-3.e-003	3.e-003	3.833e-004
83	3.515	3.505	-1.e-003	1.e-003	1.278e-004
84	3.725	3.715	1.e-003	-1.e-003	-1.278e-004
85	3.946	3.936	3.e-003	-3.e-003	-3.833e-004
86	4.181	4.171	3.e-003	-3.e-003	-3.833e-004
87	4.43	4.42	4.e-003	-4.e-003	-5.111e-004
88	4.693	4.683	5.e-003	-5.e-003	-6.389e-004
89	4.973	4.963	2.e-003	-2.e-003	-2.556e-004
90	5.27	5.26	4.e-003	-4.e-003	-5.111e-004
91	5.583	5.573	4.e-003	-4.e-003	-5.111e-004
92	5.915	5.905	4.e-003	-4.e-003	-5.111e-004
93	6.266	6.256	4.e-003	-4.e-003	-5.111e-004
94	6.64	6.63	4.e-003	-4.e-003	-5.111e-004
95	7.035	7.025	4.e-003	-4.e-003	-5.111e-004
96	7.453	7.443	2.e-003	-2.e-003	-2.556e-004
97	7.896	7.886	2.e-003	-2.e-003	-2.556e-004
98	8.366	8.356	2.e-003	-2.e-003	-2.556e-004
99	8.865	8.855	2.e-003	-2.e-003	-2.556e-004
100	9.391	9.381	2.e-003	-2.e-003	-2.556e-004
101	9.95	9.94	2.e-003	-2.e-003	-2.556e-004

102	10.54	10.53	0.	0.	0.
103	11.17	11.16	2.e-003	-2.e-003	-2.556e-004
104	11.83	11.82	0.	0.	0.

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## Rising Head Test

Site Name: Fort McClellan  
Location: Parcel 202 (7)  
Test Date: 11/27/01  
Import File: C:\Documents and Settings\jli\My Documents\Projects\FTMA\202mw11r.txt

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Well Label: RJR-202-MW11  
Aquifer Thickness: 56. feet  
Screen Length: 15. feet  
Casing Radius: 2. inches  
Effective Radius: 5. inches  
Static Water Level: 0. feet  
Water Table to Screen Bottom: 61.1 feet  
Anisotropy Ratio: 1.  
Time Adjustment: 2.1 Seconds

Test starts with trial 7

There are 112 time and drawdown measurements

Maximum head is 1.139 feet

Minimum head is 0. feet

Trial	Time (minutes)	Adjusted Time (minutes)	Drawdown (feet)	Head (feet)	Head Ratio
1	0.	-3.5e-002	0.26	0.26	0.2283
2	5.e-003	-3.e-002	0.546	0.546	0.4794
3	1.e-002	-2.5e-002	0.523	0.523	0.4592
4	1.5e-002	-2.e-002	0.793	0.793	0.6962
5	2.e-002	-1.5e-002	0.878	0.878	0.7709
6	2.5e-002	-1.e-002	0.957	0.957	0.8402
7	3.e-002	-5.e-003	1.087	1.087	0.9543
8	3.5e-002	0.	1.139	1.139	1.
9	4.e-002	5.e-003	1.125	1.125	0.9877
10	4.5e-002	1.e-002	1.105	1.105	0.9701
11	5.e-002	1.5e-002	1.087	1.087	0.9543
12	5.5e-002	2.e-002	1.069	1.069	0.9385
13	6.e-002	2.5e-002	1.057	1.057	0.928
14	6.5e-002	3.e-002	1.045	1.045	0.9175
15	7.e-002	3.5e-002	1.031	1.031	0.9052
16	7.5e-002	4.e-002	1.021	1.021	0.8964
17	8.e-002	4.5e-002	1.011	1.011	0.8876
18	8.48e-002	4.98e-002	0.995	0.995	0.8736
19	9.e-002	5.5e-002	0.985	0.985	0.8648

20	9.5e-002	6.e-002	0.975	0.975	0.856
21	0.1	6.5e-002	0.963	0.963	0.8455
22	0.1058	7.08e-002	0.951	0.951	0.8349
23	0.112	7.7e-002	0.941	0.941	0.8262
24	0.1185	8.35e-002	0.927	0.927	0.8139
25	0.1255	9.05e-002	0.911	0.911	0.7998
26	0.1328	9.78e-002	0.899	0.899	0.7893
27	0.1407	0.1057	0.883	0.883	0.7752
28	0.149	0.114	0.871	0.871	0.7647
29	0.1578	0.1228	0.857	0.857	0.7524
30	0.167	0.132	0.851	0.851	0.7471
31	0.177	0.142	0.835	0.835	0.7331
32	0.1875	0.1525	0.819	0.819	0.7191
33	0.1985	0.1635	0.805	0.805	0.7068
34	0.2102	0.1752	0.791	0.791	0.6945
35	0.2227	0.1877	0.771	0.771	0.6769
36	0.2358	0.2008	0.753	0.753	0.6611
37	0.2498	0.2148	0.733	0.733	0.6435
38	0.2647	0.2297	0.715	0.715	0.6277
39	0.2803	0.2453	0.699	0.699	0.6137
40	0.297	0.262	0.677	0.677	0.5944
41	0.3147	0.2797	0.659	0.659	0.5786
42	0.3333	0.2983	0.637	0.637	0.5593
43	0.3532	0.3182	0.611	0.611	0.5364
44	0.3742	0.3392	0.589	0.589	0.5171
45	0.3963	0.3613	0.567	0.567	0.4978
46	0.4198	0.3848	0.545	0.545	0.4785
47	0.4447	0.4097	0.525	0.525	0.4609
48	0.4697	0.4347	0.503	0.503	0.4416
49	0.4963	0.4613	0.483	0.483	0.4241
50	0.5247	0.4897	0.459	0.459	0.403
51	0.5547	0.5197	0.439	0.439	0.3854
52	0.5863	0.5513	0.417	0.417	0.3661
53	0.6213	0.5863	0.394	0.394	0.3459
54	0.6578	0.6228	0.373	0.373	0.3275
55	0.6963	0.6613	0.35	0.35	0.3073
56	0.738	0.703	0.329	0.329	0.2888
57	0.7813	0.7463	0.306	0.306	0.2687
58	0.828	0.793	0.284	0.284	0.2493
59	0.8763	0.8413	0.264	0.264	0.2318
60	0.928	0.893	0.244	0.244	0.2142

61	0.983	0.948	0.224	0.224	0.1967
62	1.041	1.006	0.207	0.207	0.1817
63	1.103	1.068	0.187	0.187	0.1642
64	1.168	1.133	0.169	0.169	0.1484
65	1.238	1.203	0.153	0.153	0.1343
66	1.311	1.276	0.137	0.137	0.1203
67	1.39	1.355	0.123	0.123	0.108
68	1.473	1.438	0.109	0.109	9.57e-002
69	1.561	1.526	9.7e-002	9.7e-002	8.516e-002
70	1.655	1.62	8.5e-002	8.5e-002	7.463e-002
71	1.753	1.718	7.4e-002	7.4e-002	6.497e-002
72	1.858	1.823	6.4e-002	6.4e-002	5.619e-002
73	1.968	1.933	5.4e-002	5.4e-002	4.741e-002
74	2.085	2.05	4.6e-002	4.6e-002	4.039e-002
75	2.21	2.175	4.e-002	4.e-002	3.512e-002
76	2.341	2.306	3.4e-002	3.4e-002	2.985e-002
77	2.481	2.446	3.e-002	3.e-002	2.634e-002
78	2.63	2.595	2.4e-002	2.4e-002	2.107e-002
79	2.786	2.751	2.e-002	2.e-002	1.756e-002
80	2.953	2.918	1.6e-002	1.6e-002	1.405e-002
81	3.13	3.095	1.4e-002	1.4e-002	1.229e-002
82	3.316	3.281	1.2e-002	1.2e-002	1.054e-002
83	3.515	3.48	1.e-002	1.e-002	8.78e-003
84	3.725	3.69	8.e-003	8.e-003	7.024e-003
85	3.946	3.911	8.e-003	8.e-003	7.024e-003
86	4.181	4.146	6.e-003	6.e-003	5.268e-003
87	4.43	4.394	6.e-003	6.e-003	5.268e-003
88	4.693	4.658	6.e-003	6.e-003	5.268e-003
89	4.973	4.938	6.e-003	6.e-003	5.268e-003
90	5.27	5.235	6.e-003	6.e-003	5.268e-003
91	5.583	5.548	4.e-003	4.e-003	3.512e-003
92	5.915	5.88	4.e-003	4.e-003	3.512e-003
93	6.266	6.231	4.e-003	4.e-003	3.512e-003
94	6.64	6.605	2.e-003	2.e-003	1.756e-003
95	7.035	7.	2.e-003	2.e-003	1.756e-003
96	7.453	7.418	2.e-003	2.e-003	1.756e-003
97	7.896	7.861	2.e-003	2.e-003	1.756e-003
98	8.366	8.331	2.e-003	2.e-003	1.756e-003
99	8.865	8.83	2.e-003	2.e-003	1.756e-003
100	9.391	9.356	2.e-003	2.e-003	1.756e-003
101	9.95	9.915	2.e-003	2.e-003	1.756e-003

102	10.54	10.51	2.e-003	2.e-003	1.756e-003
103	11.17	11.13	2.e-003	2.e-003	1.756e-003
104	11.83	11.8	0.	0.	0.
105	12.53	12.5	0.	0.	0.
106	13.28	13.24	0.	0.	0.
107	14.07	14.03	0.	0.	0.
108	14.91	14.87	0.	0.	0.
109	15.79	15.76	0.	0.	0.
110	16.73	16.69	0.	0.	0.
111	17.72	17.69	0.	0.	0.
112	18.78	18.74	0.	0.	0.

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## Falling Test

Site Name: RJR-202-MW15  
Test Date: 11/27/01  
Client: USACE  
Project Number: 774645 11120300  
Import File: C:\Documents and Settings\jli\My Documents\Projects\FTMC\202mw15f.txt

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Well Label: RJR-202-MW15  
Aquifer Thickness: 19. feet  
Screen Length: 10. feet  
Casing Radius: 2. inches  
Effective Radius: 3.94 inches  
Static Water Level: 0. feet  
Water Table to Screen Bottom: 66.3 feet  
Anisotropy Ratio: 1.  
Time Adjustment: 0.3 Seconds

Test starts with trial 1

There are 102 time and drawdown measurements

Maximum head is 4.725 feet

Minimum head is -3.e-003 feet

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Trial	Time (minutes)	Adjusted Time (minutes)	Drawdown (feet)	Head (feet)	Head Ratio
1	0.	-5.e-003	3.e-003	-3.e-003	-6.349e-004
2	5.e-003	0.	-4.725	4.725	1.
3	1.e-002	5.e-003	-3.01	3.01	0.637
4	1.5e-002	1.e-002	-1.284	1.284	0.2717
5	2.e-002	1.5e-002	-0.916	0.916	0.1939
6	2.5e-002	2.e-002	-0.318	0.318	6.73e-002
7	3.e-002	2.5e-002	-0.174	0.174	3.683e-002
8	3.5e-002	3.e-002	-1.033	1.033	0.2186
9	4.e-002	3.5e-002	-1.247	1.247	0.2639
10	4.5e-002	4.e-002	-1.207	1.207	0.2554
11	5.e-002	4.5e-002	-0.917	0.917	0.1941
12	5.5e-002	5.e-002	-0.647	0.647	0.1369
13	6.e-002	5.5e-002	-0.759	0.759	0.1606
14	6.5e-002	6.e-002	-0.949	0.949	0.2008
15	7.e-002	6.5e-002	-0.943	0.943	0.1996
16	7.5e-002	7.e-002	-0.785	0.785	0.1661
17	8.e-002	7.5e-002	-0.795	0.795	0.1683
18	8.48e-002	7.98e-002	-0.807	0.807	0.1708

19	9.e-002	8.5e-002	-0.801	0.801	0.1695
20	9.5e-002	9.e-002	-0.791	0.791	0.1674
21	0.1	9.5e-002	-0.765	0.765	0.1619
22	0.1058	0.1008	-0.755	0.755	0.1598
23	0.112	0.107	-0.743	0.743	0.1572
24	0.1185	0.1135	-0.721	0.721	0.1526
25	0.1255	0.1205	-0.717	0.717	0.1517
26	0.1328	0.1278	-0.691	0.691	0.1462
27	0.1407	0.1357	-0.683	0.683	0.1446
28	0.149	0.144	-0.683	0.683	0.1446
29	0.1578	0.1528	-0.639	0.639	0.1352
30	0.167	0.162	-0.668	0.668	0.1414
31	0.177	0.172	-0.638	0.638	0.135
32	0.1875	0.1825	-0.59	0.59	0.1249
33	0.1985	0.1935	-0.59	0.59	0.1249
34	0.2102	0.2052	-0.574	0.574	0.1215
35	0.2227	0.2177	-0.564	0.564	0.1194
36	0.2358	0.2308	-0.524	0.524	0.1109
37	0.2498	0.2448	-0.528	0.528	0.1117
38	0.2647	0.2597	-0.512	0.512	0.1084
39	0.2803	0.2753	-0.506	0.506	0.1071
40	0.297	0.292	-0.486	0.486	0.1029
41	0.3147	0.3097	-0.462	0.462	9.778e-002
42	0.3333	0.3283	-0.446	0.446	9.439e-002
43	0.3532	0.3482	-0.426	0.426	9.016e-002
44	0.3742	0.3692	-0.41	0.41	8.677e-002
45	0.3963	0.3913	-0.392	0.392	8.296e-002
46	0.4198	0.4148	-0.376	0.376	7.958e-002
47	0.4447	0.4397	-0.358	0.358	7.577e-002
48	0.4697	0.4647	-0.342	0.342	7.238e-002
49	0.4963	0.4913	-0.326	0.326	6.899e-002
50	0.5247	0.5197	-0.31	0.31	6.561e-002
51	0.5547	0.5497	-0.294	0.294	6.222e-002
52	0.5863	0.5813	-0.278	0.278	5.884e-002
53	0.6213	0.6163	-0.263	0.263	5.566e-002
54	0.6578	0.6528	-0.249	0.249	5.27e-002
55	0.6963	0.6913	-0.235	0.235	4.974e-002
56	0.738	0.733	-0.221	0.221	4.677e-002
57	0.7813	0.7763	-0.207	0.207	4.381e-002
58	0.828	0.823	-0.193	0.193	4.085e-002
59	0.8763	0.8713	-0.181	0.181	3.831e-002

60	0.928	0.923	-0.167	0.167	3.534e-002
61	0.983	0.978	-0.155	0.155	3.28e-002
62	1.041	1.036	-0.145	0.145	3.069e-002
63	1.103	1.098	-0.121	0.121	2.561e-002
64	1.168	1.163	-0.131	0.131	2.772e-002
65	1.238	1.233	-0.115	0.115	2.434e-002
66	1.311	1.306	-0.105	0.105	2.222e-002
67	1.39	1.385	-9.7e-002	9.7e-002	2.053e-002
68	1.473	1.468	-8.9e-002	8.9e-002	1.884e-002
69	1.561	1.556	-8.1e-002	8.1e-002	1.714e-002
70	1.655	1.65	-7.3e-002	7.3e-002	1.545e-002
71	1.753	1.748	-6.7e-002	6.7e-002	1.418e-002
72	1.858	1.853	-6.1e-002	6.1e-002	1.291e-002
73	1.968	1.963	-5.5e-002	5.5e-002	1.164e-002
74	2.085	2.08	-5.1e-002	5.1e-002	1.079e-002
75	2.21	2.205	-4.5e-002	4.5e-002	9.524e-003
76	2.341	2.336	-4.1e-002	4.1e-002	8.677e-003
77	2.481	2.476	-3.7e-002	3.7e-002	7.831e-003
78	2.63	2.625	-3.3e-002	3.3e-002	6.984e-003
79	2.786	2.781	-2.9e-002	2.9e-002	6.138e-003
80	2.953	2.948	-2.7e-002	2.7e-002	5.714e-003
81	3.13	3.125	-2.5e-002	2.5e-002	5.291e-003
82	3.316	3.311	-2.3e-002	2.3e-002	4.868e-003
83	3.515	3.51	-2.1e-002	2.1e-002	4.444e-003
84	3.725	3.72	-1.9e-002	1.9e-002	4.021e-003
85	3.946	3.941	-1.6e-002	1.6e-002	3.386e-003
86	4.181	4.176	-1.4e-002	1.4e-002	2.963e-003
87	4.43	4.424	-1.4e-002	1.4e-002	2.963e-003
88	4.693	4.688	-1.2e-002	1.2e-002	2.54e-003
89	4.973	4.968	-1.e-002	1.e-002	2.116e-003
90	5.27	5.265	-1.e-002	1.e-002	2.116e-003
91	5.583	5.578	-8.e-003	8.e-003	1.693e-003
92	5.915	5.91	-8.e-003	8.e-003	1.693e-003
93	6.266	6.261	-6.e-003	6.e-003	1.27e-003
94	6.64	6.635	-6.e-003	6.e-003	1.27e-003
95	7.035	7.03	-4.e-003	4.e-003	8.466e-004
96	7.453	7.448	-4.e-003	4.e-003	8.466e-004
97	7.896	7.891	-4.e-003	4.e-003	8.466e-004
98	8.366	8.361	-2.e-003	2.e-003	4.233e-004
99	8.865	8.86	-2.e-003	2.e-003	4.233e-004
100	9.391	9.386	-2.e-003	2.e-003	4.233e-004

101	9.95	9.945	0.	0.	0.
102	10.54	10.54	0.	0.	0.

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## Rising Head Test

Site Name: Fort McClellan  
Location: Parcel 202 (7)  
Test Date: 11/27/01  
Import File: C:\Documents and Settings\jli\My Documents\Projects\FTMA\202mw15r.txt

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Well Label: RJR-202-MW15  
Aquifer Thickness: 19. feet  
Screen Length: 10. feet  
Casing Radius: 2. inches  
Effective Radius: 3.94 inches  
Static Water Level: 0. feet  
Water Table to Screen Bottom: 66.3 feet  
Anisotropy Ratio: 1.  
Time Adjustment: 4.5 Seconds

Test starts with trial 15

There are 104 time and drawdown measurements

Maximum head is 1.071 feet

Minimum head is -1.9e-002 feet

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Trial	Time (minutes)	Adjusted Time (minutes)	Drawdown (feet)	Head (feet)	Head Ratio
1	0.	-7.5e-002	0.5	0.5	0.4669
2	5.e-003	-7.e-002	0.421	0.421	0.3931
3	1.e-002	-6.5e-002	4.9e-002	4.9e-002	4.575e-002
4	1.5e-002	-6.e-002	0.157	0.157	0.1466
5	2.e-002	-5.5e-002	2.7e-002	2.7e-002	2.521e-002
6	2.5e-002	-5.e-002	-1.9e-002	-1.9e-002	-1.774e-002
7	3.e-002	-4.5e-002	0.213	0.213	0.1989
8	3.5e-002	-4.e-002	0.177	0.177	0.1653
9	4.e-002	-3.5e-002	0.307	0.307	0.2866
10	4.5e-002	-3.e-002	0.585	0.585	0.5462
11	5.e-002	-2.5e-002	0.559	0.559	0.5219
12	5.5e-002	-2.e-002	0.761	0.761	0.7106
13	6.e-002	-1.5e-002	0.865	0.865	0.8077
14	6.5e-002	-1.e-002	0.905	0.905	0.845
15	7.e-002	-5.e-003	1.019	1.019	0.9514
16	7.5e-002	0.	1.071	1.071	1.
17	8.e-002	5.e-003	1.055	1.055	0.9851
18	8.48e-002	9.8e-003	1.019	1.019	0.9514
19	9.e-002	1.5e-002	0.991	0.991	0.9253

20	9.5e-002	2.e-002	0.961	0.961	0.8973
21	0.1	2.5e-002	0.939	0.939	0.8768
22	0.1058	3.08e-002	0.917	0.917	0.8562
23	0.112	3.7e-002	0.897	0.897	0.8375
24	0.1185	4.35e-002	0.875	0.875	0.817
25	0.1255	5.05e-002	0.849	0.849	0.7927
26	0.1328	5.78e-002	0.827	0.827	0.7722
27	0.1407	6.57e-002	0.805	0.805	0.7516
28	0.149	7.4e-002	0.779	0.779	0.7274
29	0.1578	8.28e-002	0.755	0.755	0.7049
30	0.167	9.2e-002	0.739	0.739	0.69
31	0.177	0.102	0.719	0.719	0.6713
32	0.1875	0.1125	0.697	0.697	0.6508
33	0.1985	0.1235	0.675	0.675	0.6303
34	0.2102	0.1352	0.653	0.653	0.6097
35	0.2227	0.1477	0.633	0.633	0.591
36	0.2358	0.1608	0.611	0.611	0.5705
37	0.2498	0.1748	0.587	0.587	0.5481
38	0.2647	0.1897	0.569	0.569	0.5313
39	0.2803	0.2053	0.547	0.547	0.5107
40	0.297	0.222	0.529	0.529	0.4939
41	0.3147	0.2397	0.505	0.505	0.4715
42	0.3333	0.2583	0.483	0.483	0.451
43	0.3532	0.2782	0.463	0.463	0.4323
44	0.3742	0.2992	0.443	0.443	0.4136
45	0.3963	0.3213	0.423	0.423	0.395
46	0.4198	0.3448	0.403	0.403	0.3763
47	0.4447	0.3697	0.383	0.383	0.3576
48	0.4697	0.3947	0.367	0.367	0.3427
49	0.4963	0.4213	0.347	0.347	0.324
50	0.5247	0.4497	0.331	0.331	0.3091
51	0.5547	0.4797	0.313	0.313	0.2923
52	0.5863	0.5113	0.297	0.297	0.2773
53	0.6213	0.5463	0.279	0.279	0.2605
54	0.6578	0.5828	0.261	0.261	0.2437
55	0.6963	0.6213	0.245	0.245	0.2288
56	0.738	0.663	0.229	0.229	0.2138
57	0.7813	0.7063	0.215	0.215	0.2007
58	0.828	0.753	0.199	0.199	0.1858
59	0.8763	0.8013	0.187	0.187	0.1746
60	0.928	0.853	0.173	0.173	0.1615

61	0.983	0.908	0.161	0.161	0.1503
62	1.041	0.9663	0.149	0.149	0.1391
63	1.103	1.028	0.137	0.137	0.1279
64	1.168	1.093	0.125	0.125	0.1167
65	1.238	1.163	0.115	0.115	0.1074
66	1.311	1.236	0.106	0.106	9.897e-002
67	1.39	1.315	9.6e-002	9.6e-002	8.964e-002
68	1.473	1.398	8.6e-002	8.6e-002	8.03e-002
69	1.561	1.486	7.8e-002	7.8e-002	7.283e-002
70	1.655	1.58	7.2e-002	7.2e-002	6.723e-002
71	1.753	1.678	6.6e-002	6.6e-002	6.162e-002
72	1.858	1.783	6.e-002	6.e-002	5.602e-002
73	1.968	1.893	5.4e-002	5.4e-002	5.042e-002
74	2.085	2.01	4.8e-002	4.8e-002	4.482e-002
75	2.21	2.135	4.2e-002	4.2e-002	3.922e-002
76	2.341	2.266	4.e-002	4.e-002	3.735e-002
77	2.481	2.406	3.6e-002	3.6e-002	3.361e-002
78	2.63	2.555	3.e-002	3.e-002	2.801e-002
79	2.786	2.711	2.8e-002	2.8e-002	2.614e-002
80	2.953	2.878	2.4e-002	2.4e-002	2.241e-002
81	3.13	3.055	2.2e-002	2.2e-002	2.054e-002
82	3.316	3.241	2.e-002	2.e-002	1.867e-002
83	3.515	3.44	1.8e-002	1.8e-002	1.681e-002
84	3.725	3.65	1.6e-002	1.6e-002	1.494e-002
85	3.946	3.871	1.4e-002	1.4e-002	1.307e-002
86	4.181	4.106	1.2e-002	1.2e-002	1.12e-002
87	4.43	4.354	1.e-002	1.e-002	9.337e-003
88	4.693	4.618	8.e-003	8.e-003	7.47e-003
89	4.973	4.898	8.e-003	8.e-003	7.47e-003
90	5.27	5.195	8.e-003	8.e-003	7.47e-003
91	5.583	5.508	6.e-003	6.e-003	5.602e-003
92	5.915	5.84	6.e-003	6.e-003	5.602e-003
93	6.266	6.191	4.e-003	4.e-003	3.735e-003
94	6.64	6.565	2.e-003	2.e-003	1.867e-003
95	7.035	6.96	4.e-003	4.e-003	3.735e-003
96	7.453	7.378	2.e-003	2.e-003	1.867e-003
97	7.896	7.821	2.e-003	2.e-003	1.867e-003
98	8.366	8.291	2.e-003	2.e-003	1.867e-003
99	8.865	8.79	0.	0.	0.
100	9.391	9.316	0.	0.	0.
101	9.95	9.875	0.	0.	0.

102	10.54	10.47	0.	0.	0.
103	11.17	11.09	0.	0.	0.
104	11.83	11.76	0.	0.	0.

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## Falling Test

Site Name: RJR-202-MW22  
Test Date: 11/27/01  
Client: USACE  
Project Number: 774645 11120300  
Import File: C:\Documents and Settings\jli\My Documents\Projects\FTMA\202mw22f.txt

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Well Label: RJR-202-MW22  
Aquifer Thickness: 50. feet  
Screen Length: 9.5 feet  
Casing Radius: 2. inches  
Effective Radius: 5. inches  
Static Water Level: 0. feet  
Water Table to Screen Bottom: 56.85 feet  
Anisotropy Ratio: 1.  
Time Adjustment: 0.6 Seconds

Test starts with trial 2

There are 133 time and drawdown measurements

Maximum head is 1.644 feet

Minimum head is -1.825 feet

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Trial	Time (minutes)	Adjusted Time (minutes)	Drawdown (feet)	Head (feet)	Head Ratio
1	0.	-1.e-002	-3.5e-002	3.5e-002	2.129e-002
2	5.e-003	-5.e-003	-0.124	0.124	7.543e-002
3	1.e-002	0.	-1.644	1.644	1.
4	1.5e-002	5.e-003	0.644	-0.644	-0.3917
5	2.e-002	1.e-002	1.825	-1.825	-1.11
6	2.5e-002	1.5e-002	-0.686	0.686	0.4173
7	3.e-002	2.e-002	-1.542	1.542	0.938
8	3.5e-002	2.5e-002	-1.591	1.591	0.9678
9	4.e-002	3.e-002	-1.545	1.545	0.9398
10	4.5e-002	3.5e-002	-1.12	1.12	0.6813
11	5.e-002	4.e-002	-0.724	0.724	0.4404
12	5.5e-002	4.5e-002	-1.326	1.326	0.8066
13	6.e-002	5.e-002	-1.488	1.488	0.9051
14	6.5e-002	5.5e-002	-1.226	1.226	0.7457
15	7.e-002	6.e-002	-1.05	1.05	0.6387
16	7.5e-002	6.5e-002	-1.268	1.268	0.7713
17	8.e-002	7.e-002	-1.258	1.258	0.7652
18	8.48e-002	7.48e-002	-1.252	1.252	0.7616

19	9.e-002	8.e-002	-1.234	1.234	0.7506
20	9.5e-002	8.5e-002	-1.252	1.252	0.7616
21	0.1	9.e-002	-1.255	1.255	0.7634
22	0.1058	9.58e-002	-1.006	1.006	0.6119
23	0.112	0.102	-1.331	1.331	0.8096
24	0.1185	0.1085	-1.234	1.234	0.7506
25	0.1255	0.1155	-1.191	1.191	0.7245
26	0.1328	0.1228	-1.267	1.267	0.7707
27	0.1407	0.1307	-1.221	1.221	0.7427
28	0.149	0.139	-1.245	1.245	0.7573
29	0.1578	0.1478	-1.241	1.241	0.7549
30	0.167	0.157	-1.232	1.232	0.7494
31	0.177	0.167	-1.238	1.238	0.753
32	0.1875	0.1775	-1.232	1.232	0.7494
33	0.1985	0.1885	-1.236	1.236	0.7518
34	0.2102	0.2002	-1.228	1.228	0.747
35	0.2227	0.2127	-1.232	1.232	0.7494
36	0.2358	0.2258	-1.246	1.246	0.7579
37	0.2498	0.2398	-1.238	1.238	0.753
38	0.2647	0.2547	-1.25	1.25	0.7603
39	0.2803	0.2703	-1.238	1.238	0.753
40	0.297	0.287	-1.254	1.254	0.7628
41	0.3147	0.3047	-1.236	1.236	0.7518
42	0.3333	0.3233	-1.22	1.22	0.7421
43	0.3532	0.3432	-1.252	1.252	0.7616
44	0.3742	0.3642	-1.228	1.228	0.747
45	0.3963	0.3863	-1.232	1.232	0.7494
46	0.4198	0.4098	-1.23	1.23	0.7482
47	0.4447	0.4347	-1.228	1.228	0.747
48	0.4697	0.4597	-1.228	1.228	0.747
49	0.4963	0.4863	-1.23	1.23	0.7482
50	0.5247	0.5147	-1.222	1.222	0.7433
51	0.5547	0.5447	-1.218	1.218	0.7409
52	0.5863	0.5763	-1.216	1.216	0.7397
53	0.6213	0.6113	-1.214	1.214	0.7384
54	0.6578	0.6478	-1.21	1.21	0.736
55	0.6963	0.6863	-1.208	1.208	0.7348
56	0.738	0.728	-1.204	1.204	0.7324
57	0.7813	0.7713	-1.201	1.201	0.7305
58	0.828	0.818	-1.197	1.197	0.7281
59	0.8763	0.8663	-1.193	1.193	0.7257

60	0.928	0.918	-1.187	1.187	0.722
61	0.983	0.973	-1.183	1.183	0.7196
62	1.041	1.031	-1.177	1.177	0.7159
63	1.103	1.093	-1.173	1.173	0.7135
64	1.168	1.158	-1.165	1.165	0.7086
65	1.238	1.228	-1.161	1.161	0.7062
66	1.311	1.301	-1.155	1.155	0.7026
67	1.39	1.38	-1.147	1.147	0.6977
68	1.473	1.463	-1.139	1.139	0.6928
69	1.561	1.551	-1.133	1.133	0.6892
70	1.655	1.645	-1.123	1.123	0.6831
71	1.753	1.743	-1.115	1.115	0.6782
72	1.858	1.848	-1.105	1.105	0.6721
73	1.968	1.958	-1.097	1.097	0.6673
74	2.085	2.075	-1.087	1.087	0.6612
75	2.21	2.2	-1.077	1.077	0.6551
76	2.341	2.331	-1.065	1.065	0.6478
77	2.481	2.471	-1.055	1.055	0.6417
78	2.63	2.62	-1.041	1.041	0.6332
79	2.786	2.776	-1.029	1.029	0.6259
80	2.953	2.943	-1.017	1.017	0.6186
81	3.13	3.12	-1.001	1.001	0.6089
82	3.316	3.306	-0.989	0.989	0.6016
83	3.515	3.505	-0.975	0.975	0.5931
84	3.725	3.715	-0.957	0.957	0.5821
85	3.946	3.936	-0.941	0.941	0.5724
86	4.181	4.171	-0.925	0.925	0.5627
87	4.43	4.42	-0.907	0.907	0.5517
88	4.693	4.683	-0.887	0.887	0.5395
89	4.973	4.963	-0.869	0.869	0.5286
90	5.27	5.26	-0.847	0.847	0.5152
91	5.583	5.573	-0.827	0.827	0.503
92	5.915	5.905	-0.807	0.807	0.4909
93	6.266	6.256	-0.785	0.785	0.4775
94	6.64	6.63	-0.761	0.761	0.4629
95	7.035	7.025	-0.739	0.739	0.4495
96	7.453	7.443	-0.714	0.714	0.4343
97	7.896	7.886	-0.69	0.69	0.4197
98	8.366	8.356	-0.666	0.666	0.4051
99	8.865	8.855	-0.64	0.64	0.3893
100	9.391	9.381	-0.612	0.612	0.3723

101	9.95	9.94	-0.586	0.586	0.3564
102	10.54	10.53	-0.55	0.55	0.3345
103	11.17	11.16	-0.532	0.532	0.3236
104	11.83	11.82	-0.471	0.471	0.2865
105	12.53	12.52	-0.478	0.478	0.2908
106	13.28	13.27	-0.447	0.447	0.2719
107	14.07	14.06	-0.421	0.421	0.2561
108	14.91	14.9	-0.391	0.391	0.2378
109	15.79	15.78	-0.365	0.365	0.222
110	16.73	16.72	-0.338	0.338	0.2056
111	17.72	17.71	-0.312	0.312	0.1898
112	18.78	18.77	-0.286	0.286	0.174
113	19.89	19.88	-0.26	0.26	0.1582
114	21.07	21.06	-0.236	0.236	0.1436
115	22.32	22.31	-0.212	0.212	0.129
116	23.65	23.64	-0.188	0.188	0.1144
117	25.05	25.04	-0.168	0.168	0.1022
118	26.54	26.53	-0.146	0.146	8.881e-002
119	28.12	28.11	-0.128	0.128	7.786e-002
120	29.79	29.78	-0.108	0.108	6.569e-002
121	31.55	31.54	-9.2e-002	9.2e-002	5.596e-002
122	33.43	33.42	-7.8e-002	7.8e-002	4.745e-002
123	35.41	35.4	-6.4e-002	6.4e-002	3.893e-002
124	37.51	37.5	-5.2e-002	5.2e-002	3.163e-002
125	39.74	39.73	-4.2e-002	4.2e-002	2.555e-002
126	42.1	42.09	-3.2e-002	3.2e-002	1.946e-002
127	44.6	44.59	-2.2e-002	2.2e-002	1.338e-002
128	47.24	47.23	-1.6e-002	1.6e-002	9.732e-003
129	50.05	50.04	-1.2e-002	1.2e-002	7.299e-003
130	53.01	53.	-8.e-003	8.e-003	4.866e-003
131	56.16	56.15	-4.e-003	4.e-003	2.433e-003
132	59.49	59.48	-2.e-003	2.e-003	1.217e-003
133	63.02	63.01	0.	0.	0.

## Rising Head Test

Site Name: Fort McClellan  
Location: Parcel 202 (7)  
Test Date: 11/27/01  
Import File: C:\Documents and Settings\jli\My Documents\Projects\FTMA\202mw22r.txt

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Well Label: RJR-202-MW22  
Aquifer Thickness: 50. feet  
Screen Length: 9.5 feet  
Casing Radius: 2. inches  
Effective Radius: 5. inches  
Static Water Level: 0. feet  
Water Table to Screen Bottom: 56.85 feet  
Anisotropy Ratio: 1.  
Time Adjustment: 2.4 Seconds

Test starts with trial 8

There are 140 time and drawdown measurements

Maximum head is 1.325 feet

Minimum head is -0.124 feet

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Trial	Time (minutes)	Adjusted Time (minutes)	Drawdown (feet)	Head (feet)	Head Ratio
1	0.	-4.e-002	-0.124	-0.124	-9.358e-002
2	5.e-003	-3.5e-002	0.276	0.276	0.2083
3	1.e-002	-3.e-002	0.575	0.575	0.434
4	1.5e-002	-2.5e-002	0.527	0.527	0.3977
5	2.e-002	-2.e-002	0.778	0.778	0.5872
6	2.5e-002	-1.5e-002	0.904	0.904	0.6823
7	3.e-002	-1.e-002	0.999	0.999	0.754
8	3.5e-002	-5.e-003	1.177	1.177	0.8883
9	4.e-002	0.	1.325	1.325	1.
10	4.5e-002	5.e-003	1.269	1.269	0.9577
11	5.e-002	1.e-002	1.301	1.301	0.9819
12	5.5e-002	1.5e-002	1.285	1.285	0.9698
13	6.e-002	2.e-002	1.275	1.275	0.9623
14	6.5e-002	2.5e-002	1.287	1.287	0.9713
15	7.e-002	3.e-002	1.293	1.293	0.9758
16	7.5e-002	3.5e-002	1.291	1.291	0.9743
17	8.e-002	4.e-002	1.281	1.281	0.9668
18	8.48e-002	4.48e-002	1.275	1.275	0.9623
19	9.e-002	5.e-002	1.283	1.283	0.9683

20	9.5e-002	5.5e-002	1.283	1.283	0.9683
21	0.1	6.e-002	1.283	1.283	0.9683
22	0.1058	6.58e-002	1.283	1.283	0.9683
23	0.112	7.2e-002	1.277	1.277	0.9638
24	0.1185	7.85e-002	1.275	1.275	0.9623
25	0.1255	8.55e-002	1.275	1.275	0.9623
26	0.1328	9.28e-002	1.275	1.275	0.9623
27	0.1407	0.1007	1.277	1.277	0.9638
28	0.149	0.109	1.275	1.275	0.9623
29	0.1578	0.1178	1.273	1.273	0.9608
30	0.167	0.127	1.269	1.269	0.9577
31	0.177	0.137	1.269	1.269	0.9577
32	0.1875	0.1475	1.281	1.281	0.9668
33	0.1985	0.1585	1.273	1.273	0.9608
34	0.2102	0.1702	1.271	1.271	0.9592
35	0.2227	0.1827	1.267	1.267	0.9562
36	0.2358	0.1958	1.27	1.27	0.9585
37	0.2498	0.2098	1.27	1.27	0.9585
38	0.2647	0.2247	1.26	1.26	0.9509
39	0.2803	0.2403	1.254	1.254	0.9464
40	0.297	0.257	1.258	1.258	0.9494
41	0.3147	0.2747	1.254	1.254	0.9464
42	0.3333	0.2933	1.262	1.262	0.9525
43	0.3532	0.3132	1.25	1.25	0.9434
44	0.3742	0.3342	1.246	1.246	0.9404
45	0.3963	0.3563	1.246	1.246	0.9404
46	0.4198	0.3798	1.248	1.248	0.9419
47	0.4447	0.4047	1.232	1.232	0.9298
48	0.4697	0.4297	1.23	1.23	0.9283
49	0.4963	0.4563	1.226	1.226	0.9253
50	0.5247	0.4847	1.222	1.222	0.9223
51	0.5547	0.5147	1.218	1.218	0.9192
52	0.5863	0.5463	1.214	1.214	0.9162
53	0.6213	0.5813	1.208	1.208	0.9117
54	0.6578	0.6178	1.204	1.204	0.9087
55	0.6963	0.6563	1.2	1.2	0.9057
56	0.738	0.698	1.196	1.196	0.9026
57	0.7813	0.7413	1.19	1.19	0.8981
58	0.828	0.788	1.186	1.186	0.8951
59	0.8763	0.8363	1.15	1.15	0.8679
60	0.928	0.888	1.149	1.149	0.8672

61	0.983	0.943	1.147	1.147	0.8657
62	1.041	1.001	1.147	1.147	0.8657
63	1.103	1.063	1.152	1.152	0.8694
64	1.168	1.128	1.144	1.144	0.8634
65	1.238	1.198	1.136	1.136	0.8574
66	1.311	1.271	1.128	1.128	0.8513
67	1.39	1.35	1.12	1.12	0.8453
68	1.473	1.433	1.112	1.112	0.8392
69	1.561	1.521	1.102	1.102	0.8317
70	1.655	1.615	1.092	1.092	0.8242
71	1.753	1.713	1.082	1.082	0.8166
72	1.858	1.818	1.07	1.07	0.8075
73	1.968	1.928	1.058	1.058	0.7985
74	2.085	2.045	1.046	1.046	0.7894
75	2.21	2.17	1.036	1.036	0.7819
76	2.341	2.301	1.02	1.02	0.7698
77	2.481	2.441	1.008	1.008	0.7608
78	2.63	2.59	0.992	0.992	0.7487
79	2.786	2.746	0.978	0.978	0.7381
80	2.953	2.913	0.962	0.962	0.726
81	3.13	3.09	0.946	0.946	0.714
82	3.316	3.276	0.928	0.928	0.7004
83	3.515	3.475	0.912	0.912	0.6883
84	3.725	3.685	0.894	0.894	0.6747
85	3.946	3.906	0.874	0.874	0.6596
86	4.181	4.141	0.856	0.856	0.646
87	4.43	4.39	0.836	0.836	0.6309
88	4.693	4.653	0.814	0.814	0.6143
89	4.973	4.933	0.792	0.792	0.5977
90	5.27	5.23	0.77	0.77	0.5811
91	5.583	5.543	0.748	0.748	0.5645
92	5.915	5.875	0.724	0.724	0.5464
93	6.266	6.226	0.7	0.7	0.5283
94	6.64	6.6	0.676	0.676	0.5102
95	7.035	6.995	0.65	0.65	0.4906
96	7.453	7.413	0.624	0.624	0.4709
97	7.896	7.856	0.598	0.598	0.4513
98	8.366	8.326	0.574	0.574	0.4332
99	8.865	8.825	0.546	0.546	0.4121
100	9.391	9.351	0.52	0.52	0.3925
101	9.95	9.91	0.494	0.494	0.3728

102	10.54	10.5	0.468	0.468	0.3532
103	11.17	11.13	0.442	0.442	0.3336
104	11.83	11.79	0.416	0.416	0.314
105	12.53	12.49	0.39	0.39	0.2943
106	13.28	13.24	0.366	0.366	0.2762
107	14.07	14.03	0.34	0.34	0.2566
108	14.91	14.87	0.316	0.316	0.2385
109	15.79	15.75	0.292	0.292	0.2204
110	16.73	16.69	0.268	0.268	0.2023
111	17.72	17.68	0.246	0.246	0.1857
112	18.78	18.74	0.224	0.224	0.1691
113	19.89	19.85	0.206	0.206	0.1555
114	21.07	21.03	0.186	0.186	0.1404
115	22.32	22.28	0.168	0.168	0.1268
116	23.65	23.61	0.152	0.152	0.1147
117	25.05	25.01	0.136	0.136	0.1026
118	26.54	26.5	0.122	0.122	9.208e-002
119	28.12	28.08	0.108	0.108	8.151e-002
120	29.79	29.75	9.6e-002	9.6e-002	7.245e-002
121	31.55	31.51	8.6e-002	8.6e-002	6.491e-002
122	33.43	33.39	7.6e-002	7.6e-002	5.736e-002
123	35.41	35.37	6.6e-002	6.6e-002	4.981e-002
124	37.51	37.47	6.e-002	6.e-002	4.528e-002
125	39.74	39.7	5.2e-002	5.2e-002	3.925e-002
126	42.1	42.06	4.6e-002	4.6e-002	3.472e-002
127	44.6	44.56	4.e-002	4.e-002	3.019e-002
128	47.24	47.2	3.6e-002	3.6e-002	2.717e-002
129	50.05	50.01	3.2e-002	3.2e-002	2.415e-002
130	53.01	52.97	2.6e-002	2.6e-002	1.962e-002
131	56.16	56.12	2.2e-002	2.2e-002	1.66e-002
132	59.49	59.45	1.8e-002	1.8e-002	1.358e-002
133	63.02	62.98	1.4e-002	1.4e-002	1.057e-002
134	66.76	66.72	1.e-002	1.e-002	7.547e-003
135	70.72	70.68	1.e-002	1.e-002	7.547e-003
136	74.91	74.87	8.e-003	8.e-003	6.038e-003
137	79.35	79.31	6.e-003	6.e-003	4.528e-003
138	84.06	84.02	4.e-003	4.e-003	3.019e-003
139	89.05	89.01	2.e-003	2.e-003	1.509e-003
140	94.33	94.29	0.	0.	0.

## Falling Head Test

Site Name: Fort McClellan  
Location: Parcel 202 (7)  
Test Date: 11/27/01  
Import File: C:\Documents and Settings\jli\My Documents\Projects\FTMA\202mw14f.txt

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Well Label: RJR-202-MW14  
Aquifer Thickness: 111.3 feet  
Screen Length: 15. feet  
Casing Radius: 2. inches  
Effective Radius: 4.25 inches  
Static Water Level: 0. feet  
Water Table to Screen Bottom: 111.3 feet  
Anisotropy Ratio: 1.  
Time Adjustment: 0.6 Seconds

Test starts with trial 2

There are 100 time and drawdown measurements

Maximum head is 3.043 feet

Minimum head is -2.968 feet

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Trial	Time (minutes)	Adjusted Time (minutes)	Drawdown (feet)	Head (feet)	Head Ratio
1	0.	-1.e-002	5.e-003	-5.e-003	-1.643e-003
2	5.e-003	-5.e-003	-0.569	0.569	0.187
3	1.e-002	0.	-3.043	3.043	1.
4	1.5e-002	5.e-003	2.968	-2.968	-0.9754
5	2.e-002	1.e-002	-0.151	0.151	4.962e-002
6	2.5e-002	1.5e-002	-2.028	2.028	0.6664
7	3.e-002	2.e-002	-1.877	1.877	0.6168
8	3.5e-002	2.5e-002	-1.566	1.566	0.5146
9	4.e-002	3.e-002	-1.148	1.148	0.3773
10	4.5e-002	3.5e-002	-0.119	0.119	3.911e-002
11	5.e-002	4.e-002	-1.136	1.136	0.3733
12	5.5e-002	4.5e-002	-1.429	1.429	0.4696
13	6.e-002	5.e-002	-1.09	1.09	0.3582
14	6.5e-002	5.5e-002	-0.826	0.826	0.2714
15	7.e-002	6.e-002	-1.136	1.136	0.3733
16	7.5e-002	6.5e-002	-1.055	1.055	0.3467
17	8.e-002	7.e-002	-1.009	1.009	0.3316
18	8.48e-002	7.48e-002	-1.08	1.08	0.3549
19	9.e-002	8.e-002	-1.031	1.031	0.3388

20	9.5e-002	8.5e-002	-1.014	1.014	0.3332
21	0.1	9.e-002	-1.018	1.018	0.3345
22	0.1058	9.58e-002	-1.009	1.009	0.3316
23	0.112	0.102	-1.06	1.06	0.3483
24	0.1185	0.1085	-1.018	1.018	0.3345
25	0.1255	0.1155	-0.987	0.987	0.3244
26	0.1328	0.1228	-1.001	1.001	0.329
27	0.1407	0.1307	-0.994	0.994	0.3267
28	0.149	0.139	-0.984	0.984	0.3234
29	0.1578	0.1478	-0.97	0.97	0.3188
30	0.167	0.157	-0.962	0.962	0.3161
31	0.177	0.167	-0.958	0.958	0.3148
32	0.1875	0.1775	-0.933	0.933	0.3066
33	0.1985	0.1885	-0.938	0.938	0.3082
34	0.2102	0.2002	-0.936	0.936	0.3076
35	0.2227	0.2127	-0.923	0.923	0.3033
36	0.2358	0.2258	-0.926	0.926	0.3043
37	0.2498	0.2398	-0.914	0.914	0.3004
38	0.2647	0.2547	-0.906	0.906	0.2977
39	0.2803	0.2703	-0.887	0.887	0.2915
40	0.297	0.287	-0.88	0.88	0.2892
41	0.3147	0.3047	-0.862	0.862	0.2833
42	0.3333	0.3233	-0.848	0.848	0.2787
43	0.3532	0.3432	-0.828	0.828	0.2721
44	0.3742	0.3642	-0.814	0.814	0.2675
45	0.3963	0.3863	-0.796	0.796	0.2616
46	0.4198	0.4098	-0.782	0.782	0.257
47	0.4447	0.4347	-0.762	0.762	0.2504
48	0.4697	0.4597	-0.74	0.74	0.2432
49	0.4963	0.4863	-0.723	0.723	0.2376
50	0.5247	0.5147	-0.709	0.709	0.233
51	0.5547	0.5447	-0.687	0.687	0.2258
52	0.5863	0.5763	-0.667	0.667	0.2192
53	0.6213	0.6113	-0.647	0.647	0.2126
54	0.6578	0.6478	-0.63	0.63	0.207
55	0.6963	0.6863	-0.608	0.608	0.1998
56	0.738	0.728	-0.581	0.581	0.1909
57	0.7813	0.7713	-0.562	0.562	0.1847
58	0.828	0.818	-0.54	0.54	0.1775
59	0.8763	0.8663	-0.513	0.513	0.1686
60	0.928	0.918	-0.491	0.491	0.1614

61	0.983	0.973	-0.469	0.469	0.1541
62	1.041	1.031	-0.447	0.447	0.1469
63	1.103	1.093	-0.42	0.42	0.138
64	1.168	1.158	-0.391	0.391	0.1285
65	1.238	1.228	-0.362	0.362	0.119
66	1.311	1.301	-0.335	0.335	0.1101
67	1.39	1.38	-0.313	0.313	0.1029
68	1.473	1.463	-0.288	0.288	9.464e-002
69	1.561	1.551	-0.266	0.266	8.741e-002
70	1.655	1.645	-0.239	0.239	7.854e-002
71	1.753	1.743	-0.225	0.225	7.394e-002
72	1.858	1.848	-0.198	0.198	6.507e-002
73	1.968	1.958	-0.181	0.181	5.948e-002
74	2.085	2.075	-0.156	0.156	5.127e-002
75	2.21	2.2	-0.144	0.144	4.732e-002
76	2.341	2.331	-0.13	0.13	4.272e-002
77	2.481	2.471	-0.117	0.117	3.845e-002
78	2.63	2.62	-9.5e-002	9.5e-002	3.122e-002
79	2.786	2.776	-8.3e-002	8.3e-002	2.728e-002
80	2.953	2.943	-7.1e-002	7.1e-002	2.333e-002
81	3.13	3.12	-6.1e-002	6.1e-002	2.005e-002
82	3.316	3.306	-5.4e-002	5.4e-002	1.775e-002
83	3.515	3.505	-4.2e-002	4.2e-002	1.38e-002
84	3.725	3.715	-3.4e-002	3.4e-002	1.117e-002
85	3.946	3.936	-2.9e-002	2.9e-002	9.53e-003
86	4.181	4.171	-2.5e-002	2.5e-002	8.216e-003
87	4.43	4.42	-2.2e-002	2.2e-002	7.23e-003
88	4.693	4.683	-1.e-002	1.e-002	3.286e-003
89	4.973	4.963	-1.3e-002	1.3e-002	4.272e-003
90	5.27	5.26	-8.e-003	8.e-003	2.629e-003
91	5.583	5.573	-5.e-003	5.e-003	1.643e-003
92	5.915	5.905	-3.e-003	3.e-003	9.859e-004
93	6.266	6.256	-3.e-003	3.e-003	9.859e-004
94	6.64	6.63	-5.e-003	5.e-003	1.643e-003
95	7.035	7.025	-3.e-003	3.e-003	9.859e-004
96	7.453	7.443	0.	0.	0.
97	7.896	7.886	0.	0.	0.
98	8.366	8.356	4.e-003	-4.e-003	-1.314e-003
99	8.865	8.855	0.	0.	0.
100	9.391	9.381	0.	0.	0.

## Rising Head Test

Site Name: Fort McClellan  
Location: Parcel 202 (7)  
Test Date: 11/27/01  
Import File: C:\Documents and Settings\jli\My Documents\Projects\FTMA\202mw14r.txt

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Well Label: RJR-202-MW14  
Aquifer Thickness: 111.3 feet  
Screen Length: 15. feet  
Casing Radius: 2. inches  
Effective Radius: 4.25 inches  
Static Water Level: 0. feet  
Water Table to Screen Bottom: 111.3 feet  
Anisotropy Ratio: 1.  
Time Adjustment: 3.9 Seconds

Test starts with trial 13

There are 98 time and drawdown measurements

Maximum head is 1.145 feet

Minimum head is -7.e-003 feet

Trial	Time (minutes)	Adjusted Time (minutes)	Drawdown (feet)	Head (feet)	Head Ratio
1	0.	-6.5e-002	0.	0.	0.
2	5.e-003	-6.e-002	-5.e-003	-5.e-003	-4.367e-003
3	1.e-002	-5.5e-002	-7.e-003	-7.e-003	-6.114e-003
4	1.5e-002	-5.e-002	-7.e-003	-7.e-003	-6.114e-003
5	2.e-002	-4.5e-002	0.458	0.458	0.4
6	2.5e-002	-4.e-002	0.233	0.233	0.2035
7	3.e-002	-3.5e-002	0.291	0.291	0.2541
8	3.5e-002	-3.e-002	0.357	0.357	0.3118
9	4.e-002	-2.5e-002	0.58	0.58	0.5066
10	4.5e-002	-2.e-002	0.754	0.754	0.6585
11	5.e-002	-1.5e-002	0.783	0.783	0.6838
12	5.5e-002	-1.e-002	0.937	0.937	0.8183
13	6.e-002	-5.e-003	1.03	1.03	0.8996
14	6.5e-002	0.	1.145	1.145	1.
15	7.e-002	5.e-003	1.135	1.135	0.9913
16	7.5e-002	1.e-002	1.137	1.137	0.993
17	8.e-002	1.5e-002	1.13	1.13	0.9869
18	8.48e-002	1.98e-002	1.12	1.12	0.9782
19	9.e-002	2.5e-002	1.108	1.108	0.9677

20	9.5e-002	3.e-002	1.101	1.101	0.9616
21	0.1	3.5e-002	1.096	1.096	0.9572
22	0.1058	4.08e-002	1.084	1.084	0.9467
23	0.112	4.7e-002	1.079	1.079	0.9424
24	0.1185	5.35e-002	1.069	1.069	0.9336
25	0.1255	6.05e-002	1.062	1.062	0.9275
26	0.1328	6.78e-002	1.054	1.054	0.9205
27	0.1407	7.57e-002	1.047	1.047	0.9144
28	0.149	8.4e-002	1.035	1.035	0.9039
29	0.1578	9.28e-002	1.025	1.025	0.8952
30	0.167	0.102	1.018	1.018	0.8891
31	0.177	0.112	1.01	1.01	0.8821
32	0.1875	0.1225	0.996	0.996	0.8699
33	0.1985	0.1335	0.983	0.983	0.8585
34	0.2102	0.1452	0.976	0.976	0.8524
35	0.2227	0.1577	0.961	0.961	0.8393
36	0.2358	0.1708	0.944	0.944	0.8245
37	0.2498	0.1848	0.942	0.942	0.8227
38	0.2647	0.1997	0.922	0.922	0.8052
39	0.2803	0.2153	0.913	0.913	0.7974
40	0.297	0.232	0.893	0.893	0.7799
41	0.3147	0.2497	0.881	0.881	0.7694
42	0.3333	0.2683	0.866	0.866	0.7563
43	0.3532	0.2882	0.846	0.846	0.7389
44	0.3742	0.3092	0.827	0.827	0.7223
45	0.3963	0.3313	0.81	0.81	0.7074
46	0.4198	0.3548	0.79	0.79	0.69
47	0.4447	0.3797	0.773	0.773	0.6751
48	0.4697	0.4047	0.756	0.756	0.6603
49	0.4963	0.4313	0.736	0.736	0.6428
50	0.5247	0.4597	0.714	0.714	0.6236
51	0.5547	0.4897	0.695	0.695	0.607
52	0.5863	0.5213	0.678	0.678	0.5921
53	0.6213	0.5563	0.656	0.656	0.5729
54	0.6578	0.5928	0.641	0.641	0.5598
55	0.6963	0.6313	0.614	0.614	0.5362
56	0.738	0.673	0.59	0.59	0.5153
57	0.7813	0.7163	0.568	0.568	0.4961
58	0.828	0.763	0.548	0.548	0.4786
59	0.8763	0.8113	0.521	0.521	0.455
60	0.928	0.863	0.497	0.497	0.4341

61	0.983	0.918	0.477	0.477	0.4166
62	1.041	0.9763	0.453	0.453	0.3956
63	1.103	1.038	0.426	0.426	0.3721
64	1.168	1.103	0.404	0.404	0.3528
65	1.238	1.173	0.377	0.377	0.3293
66	1.311	1.246	0.357	0.357	0.3118
67	1.39	1.325	0.335	0.335	0.2926
68	1.473	1.408	0.313	0.313	0.2734
69	1.561	1.496	0.289	0.289	0.2524
70	1.655	1.59	0.267	0.267	0.2332
71	1.753	1.688	0.25	0.25	0.2183
72	1.858	1.793	0.225	0.225	0.1965
73	1.968	1.903	0.208	0.208	0.1817
74	2.085	2.02	0.188	0.188	0.1642
75	2.21	2.145	0.169	0.169	0.1476
76	2.341	2.276	0.152	0.152	0.1328
77	2.481	2.416	0.137	0.137	0.1197
78	2.63	2.565	0.122	0.122	0.1066
79	2.786	2.721	0.108	0.108	9.432e-002
80	2.953	2.888	9.5e-002	9.5e-002	8.297e-002
81	3.13	3.065	7.8e-002	7.8e-002	6.812e-002
82	3.316	3.251	6.8e-002	6.8e-002	5.939e-002
83	3.515	3.45	6.1e-002	6.1e-002	5.328e-002
84	3.725	3.66	5.4e-002	5.4e-002	4.716e-002
85	3.946	3.881	3.7e-002	3.7e-002	3.231e-002
86	4.181	4.116	3.9e-002	3.9e-002	3.406e-002
87	4.43	4.364	3.2e-002	3.2e-002	2.795e-002
88	4.693	4.628	2.7e-002	2.7e-002	2.358e-002
89	4.973	4.908	2.7e-002	2.7e-002	2.358e-002
90	5.27	5.205	1.7e-002	1.7e-002	1.485e-002
91	5.583	5.518	1.2e-002	1.2e-002	1.048e-002
92	5.915	5.85	1.2e-002	1.2e-002	1.048e-002
93	6.266	6.201	1.e-002	1.e-002	8.734e-003
94	6.64	6.575	1.e-002	1.e-002	8.734e-003
95	7.035	6.97	5.e-003	5.e-003	4.367e-003
96	7.453	7.388	2.e-003	2.e-003	1.747e-003
97	7.896	7.831	0.	0.	0.
98	8.366	8.301	-3.e-003	-3.e-003	-2.62e-003

## Falling Head Test

Site Name: Fort McClellan  
Location: Parcel 202 (7)  
Test Date: 11/27/01  
Import File: C:\Documents and Settings\jli\My Documents\Projects\FTMA\202mw28f.txt

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Well Label: RJR-202-MW28  
Aquifer Thickness: 109.9 feet  
Screen Length: 10. feet  
Casing Radius: 2. inches  
Effective Radius: 3.94 inches  
Static Water Level: 0. feet  
Water Table to Screen Bottom: 109.9 feet  
Anisotropy Ratio: 1.  
Time Adjustment: 0.6 Seconds

Test starts with trial 2

There are 103 time and drawdown measurements

Maximum head is 3.073 feet

Minimum head is -1.044 feet

Trial	Time (minutes)	Adjusted Time (minutes)	Drawdown (feet)	Head (feet)	Head Ratio
1	0.	-1.e-002	4.e-003	-4.e-003	-1.302e-003
2	5.e-003	-5.e-003	-1.466	1.466	0.4771
3	1.e-002	0.	-3.073	3.073	1.
4	1.5e-002	5.e-003	-0.886	0.886	0.2883
5	2.e-002	1.e-002	1.044	-1.044	-0.3397
6	2.5e-002	1.5e-002	-0.952	0.952	0.3098
7	3.e-002	2.e-002	-1.439	1.439	0.4683
8	3.5e-002	2.5e-002	-1.361	1.361	0.4429
9	4.e-002	3.e-002	-1.327	1.327	0.4318
10	4.5e-002	3.5e-002	-1.05	1.05	0.3417
11	5.e-002	4.e-002	-0.734	0.734	0.2389
12	5.5e-002	4.5e-002	-1.104	1.104	0.3593
13	6.e-002	5.e-002	-1.216	1.216	0.3957
14	6.5e-002	5.5e-002	-0.991	0.991	0.3225
15	7.e-002	6.e-002	-1.055	1.055	0.3433
16	7.5e-002	6.5e-002	-1.087	1.087	0.3537
17	8.e-002	7.e-002	-1.038	1.038	0.3378
18	8.48e-002	7.48e-002	-1.062	1.062	0.3456
19	9.e-002	8.e-002	-1.055	1.055	0.3433

20	9.5e-002	8.5e-002	-1.045	1.045	0.3401
21	0.1	9.e-002	-1.055	1.055	0.3433
22	0.1058	9.58e-002	-1.03	1.03	0.3352
23	0.112	0.102	-1.03	1.03	0.3352
24	0.1185	0.1085	-1.035	1.035	0.3368
25	0.1255	0.1155	-1.028	1.028	0.3345
26	0.1328	0.1228	-0.984	0.984	0.3202
27	0.1407	0.1307	-0.996	0.996	0.3241
28	0.149	0.139	-1.003	1.003	0.3264
29	0.1578	0.1478	-1.003	1.003	0.3264
30	0.167	0.157	-0.972	0.972	0.3163
31	0.177	0.167	-0.969	0.969	0.3153
32	0.1875	0.1775	-0.969	0.969	0.3153
33	0.1985	0.1885	-0.947	0.947	0.3082
34	0.2102	0.2002	-0.947	0.947	0.3082
35	0.2227	0.2127	-0.94	0.94	0.3059
36	0.2358	0.2258	-0.923	0.923	0.3004
37	0.2498	0.2398	-0.923	0.923	0.3004
38	0.2647	0.2547	-0.908	0.908	0.2955
39	0.2803	0.2703	-0.898	0.898	0.2922
40	0.297	0.287	-0.884	0.884	0.2877
41	0.3147	0.3047	-0.867	0.867	0.2821
42	0.3333	0.3233	-0.849	0.849	0.2763
43	0.3532	0.3432	-0.835	0.835	0.2717
44	0.3742	0.3642	-0.818	0.818	0.2662
45	0.3963	0.3863	-0.798	0.798	0.2597
46	0.4198	0.4098	-0.781	0.781	0.2541
47	0.4447	0.4347	-0.744	0.744	0.2421
48	0.4697	0.4597	-0.747	0.747	0.2431
49	0.4963	0.4863	-0.727	0.727	0.2366
50	0.5247	0.5147	-0.708	0.708	0.2304
51	0.5547	0.5447	-0.688	0.688	0.2239
52	0.5863	0.5763	-0.669	0.669	0.2177
53	0.6213	0.6113	-0.647	0.647	0.2105
54	0.6578	0.6478	-0.627	0.627	0.204
55	0.6963	0.6863	-0.6	0.6	0.1952
56	0.738	0.728	-0.573	0.573	0.1865
57	0.7813	0.7713	-0.554	0.554	0.1803
58	0.828	0.818	-0.527	0.527	0.1715
59	0.8763	0.8663	-0.51	0.51	0.166
60	0.928	0.918	-0.485	0.485	0.1578

61	0.983	0.973	-0.458	0.458	0.149
62	1.041	1.031	-0.432	0.432	0.1406
63	1.103	1.093	-0.409	0.409	0.1331
64	1.168	1.158	-0.385	0.385	0.1253
65	1.238	1.228	-0.361	0.361	0.1175
66	1.311	1.301	-0.336	0.336	0.1093
67	1.39	1.38	-0.312	0.312	0.1015
68	1.473	1.463	-0.292	0.292	9.502e-002
69	1.561	1.551	-0.265	0.265	8.623e-002
70	1.655	1.645	-0.243	0.243	7.908e-002
71	1.753	1.743	-0.224	0.224	7.289e-002
72	1.858	1.848	-0.202	0.202	6.573e-002
73	1.968	1.958	-0.182	0.182	5.923e-002
74	2.085	2.075	-0.163	0.163	5.304e-002
75	2.21	2.2	-0.146	0.146	4.751e-002
76	2.341	2.331	-0.129	0.129	4.198e-002
77	2.481	2.471	-0.114	0.114	3.71e-002
78	2.63	2.62	-9.7e-002	9.7e-002	3.157e-002
79	2.786	2.776	-8.5e-002	8.5e-002	2.766e-002
80	2.953	2.943	-7.5e-002	7.5e-002	2.441e-002
81	3.13	3.12	-6.5e-002	6.5e-002	2.115e-002
82	3.316	3.306	-5.e-002	5.e-002	1.627e-002
83	3.515	3.505	-4.3e-002	4.3e-002	1.399e-002
84	3.725	3.715	-3.3e-002	3.3e-002	1.074e-002
85	3.946	3.936	-2.4e-002	2.4e-002	7.81e-003
86	4.181	4.171	-2.4e-002	2.4e-002	7.81e-003
87	4.43	4.42	-1.9e-002	1.9e-002	6.183e-003
88	4.693	4.683	-1.4e-002	1.4e-002	4.556e-003
89	4.973	4.963	-1.1e-002	1.1e-002	3.58e-003
90	5.27	5.26	-9.e-003	9.e-003	2.929e-003
91	5.583	5.573	-4.e-003	4.e-003	1.302e-003
92	5.915	5.905	-7.e-003	7.e-003	2.278e-003
93	6.266	6.256	-2.e-003	2.e-003	6.508e-004
94	6.64	6.63	1.e-003	-1.e-003	-3.254e-004
95	7.035	7.025	3.e-003	-3.e-003	-9.762e-004
96	7.453	7.443	1.e-003	-1.e-003	-3.254e-004
97	7.896	7.886	1.e-003	-1.e-003	-3.254e-004
98	8.366	8.356	3.e-003	-3.e-003	-9.762e-004
99	8.865	8.855	3.e-003	-3.e-003	-9.762e-004
100	9.391	9.381	0.	0.	0.
101	9.95	9.94	-5.e-003	5.e-003	1.627e-003

102	10.54	10.53	0.	0.	0.
103	11.17	11.16	0.	0.	0.

---

## Rising Head Test

Site Name: Fort McClellan  
Location: Parcel 202 (7)  
Test Date: 11/27/01  
Import File: C:\Documents and Settings\jli\My Documents\Projects\FTMA\202mw28r.txt

---

Well Label: RJR-202-MW28  
Aquifer Thickness: 109.9 feet  
Screen Length: 10. feet  
Casing Radius: 2. inches  
Effective Radius: 3.94 inches  
Static Water Level: 0. feet  
Water Table to Screen Bottom: 109.9 feet  
Anisotropy Ratio: 1.  
Time Adjustment: 3. Seconds

Test starts with trial 10

There are 100 time and drawdown measurements

Maximum head is 1.216 feet

Minimum head is 0. feet

Trial	Time (minutes)	Adjusted Time (minutes)	Drawdown (feet)	Head (feet)	Head Ratio
1	0.	-5.e-002	0.21	0.21	0.1727
2	5.e-003	-4.5e-002	8.3e-002	8.3e-002	6.826e-002
3	1.e-002	-4.e-002	0.208	0.208	0.1711
4	1.5e-002	-3.5e-002	0.392	0.392	0.3224
5	2.e-002	-3.e-002	0.771	0.771	0.634
6	2.5e-002	-2.5e-002	0.588	0.588	0.4836
7	3.e-002	-2.e-002	0.859	0.859	0.7064
8	3.5e-002	-1.5e-002	0.928	0.928	0.7632
9	4.e-002	-1.e-002	1.023	1.023	0.8413
10	4.5e-002	-5.e-003	1.106	1.106	0.9095
11	5.e-002	0.	1.216	1.216	1.
12	5.5e-002	5.e-003	1.211	1.211	0.9959
13	6.e-002	1.e-002	1.197	1.197	0.9844
14	6.5e-002	1.5e-002	1.194	1.194	0.9819
15	7.e-002	2.e-002	1.177	1.177	0.9679
16	7.5e-002	2.5e-002	1.177	1.177	0.9679
17	8.e-002	3.e-002	1.165	1.165	0.9581
18	8.48e-002	3.48e-002	1.16	1.16	0.9539
19	9.e-002	4.e-002	1.145	1.145	0.9416

20	9.5e-002	4.5e-002	1.143	1.143	0.94
21	0.1	5.e-002	1.138	1.138	0.9359
22	0.1058	5.58e-002	1.133	1.133	0.9317
23	0.112	6.2e-002	1.121	1.121	0.9219
24	0.1185	6.85e-002	1.111	1.111	0.9137
25	0.1255	7.55e-002	1.104	1.104	0.9079
26	0.1328	8.28e-002	1.097	1.097	0.9021
27	0.1407	9.07e-002	1.082	1.082	0.8898
28	0.149	9.9e-002	1.075	1.075	0.884
29	0.1578	0.1078	1.062	1.062	0.8734
30	0.167	0.117	1.05	1.05	0.8635
31	0.177	0.127	1.043	1.043	0.8577
32	0.1875	0.1375	1.026	1.026	0.8438
33	0.1985	0.1485	1.011	1.011	0.8314
34	0.2102	0.1602	0.999	0.999	0.8215
35	0.2227	0.1727	0.986	0.986	0.8109
36	0.2358	0.1858	0.972	0.972	0.7993
37	0.2498	0.1998	0.955	0.955	0.7854
38	0.2647	0.2147	0.94	0.94	0.773
39	0.2803	0.2303	0.923	0.923	0.759
40	0.297	0.247	0.903	0.903	0.7426
41	0.3147	0.2647	0.891	0.891	0.7327
42	0.3333	0.2833	0.876	0.876	0.7204
43	0.3532	0.3032	0.859	0.859	0.7064
44	0.3742	0.3242	0.837	0.837	0.6883
45	0.3963	0.3463	0.813	0.813	0.6686
46	0.4198	0.3698	0.795	0.795	0.6538
47	0.4447	0.3947	0.773	0.773	0.6357
48	0.4697	0.4197	0.751	0.751	0.6176
49	0.4963	0.4463	0.732	0.732	0.602
50	0.5247	0.4747	0.71	0.71	0.5839
51	0.5547	0.5047	0.685	0.685	0.5633
52	0.5863	0.5363	0.661	0.661	0.5436
53	0.6213	0.5713	0.634	0.634	0.5214
54	0.6578	0.6078	0.61	0.61	0.5016
55	0.6963	0.6463	0.59	0.59	0.4852
56	0.738	0.688	0.565	0.565	0.4646
57	0.7813	0.7313	0.536	0.536	0.4408
58	0.828	0.778	0.509	0.509	0.4186
59	0.8763	0.8263	0.487	0.487	0.4005
60	0.928	0.878	0.46	0.46	0.3783

61	0.983	0.933	0.433	0.433	0.3561
62	1.041	0.9913	0.411	0.411	0.338
63	1.103	1.053	0.384	0.384	0.3158
64	1.168	1.118	0.36	0.36	0.2961
65	1.238	1.188	0.335	0.335	0.2755
66	1.311	1.261	0.308	0.308	0.2533
67	1.39	1.34	0.286	0.286	0.2352
68	1.473	1.423	0.262	0.262	0.2155
69	1.561	1.511	0.237	0.237	0.1949
70	1.655	1.605	0.22	0.22	0.1809
71	1.753	1.703	0.198	0.198	0.1628
72	1.858	1.808	0.179	0.179	0.1472
73	1.968	1.918	0.159	0.159	0.1308
74	2.085	2.035	0.14	0.14	0.1151
75	2.21	2.16	0.122	0.122	0.1003
76	2.341	2.291	0.11	0.11	9.046e-002
77	2.481	2.431	9.5e-002	9.5e-002	7.813e-002
78	2.63	2.58	8.3e-002	8.3e-002	6.826e-002
79	2.786	2.736	7.6e-002	7.6e-002	6.25e-002
80	2.953	2.903	5.9e-002	5.9e-002	4.852e-002
81	3.13	3.08	4.9e-002	4.9e-002	4.03e-002
82	3.316	3.266	4.4e-002	4.4e-002	3.618e-002
83	3.515	3.465	3.4e-002	3.4e-002	2.796e-002
84	3.725	3.675	2.9e-002	2.9e-002	2.385e-002
85	3.946	3.896	2.2e-002	2.2e-002	1.809e-002
86	4.181	4.131	1.4e-002	1.4e-002	1.151e-002
87	4.43	4.38	1.7e-002	1.7e-002	1.398e-002
88	4.693	4.643	1.e-002	1.e-002	8.224e-003
89	4.973	4.923	1.4e-002	1.4e-002	1.151e-002
90	5.27	5.22	1.e-002	1.e-002	8.224e-003
91	5.583	5.533	7.e-003	7.e-003	5.757e-003
92	5.915	5.865	5.e-003	5.e-003	4.112e-003
93	6.266	6.216	7.e-003	7.e-003	5.757e-003
94	6.64	6.59	5.e-003	5.e-003	4.112e-003
95	7.035	6.985	0.	0.	0.
96	7.453	7.403	0.	0.	0.
97	7.896	7.846	2.e-003	2.e-003	1.645e-003
98	8.366	8.316	0.	0.	0.
99	8.865	8.815	0.	0.	0.
100	9.391	9.341	0.	0.	0.

## **FIELD ACTIVITY DAILY LOGS**



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## SLUG TEST FORM

DATE: 11/27/01

PROJECT NAME: FTMA		PROJECT No.: 774645						
		COST CODE : 11120300						
WELL No.: RJR -202 - mw10		WELL LOCATION: Range 1						
INITIAL MEASUREMENT (PRIOR TO THE TEST)								
TIME	DTW (ft)	CASING DIAMETER (in)	TD (ft)					
0823	72.10	4	96.0					
FALLING TEST (SLUG IN)		TEST No. : 9	REF. = 0					
TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	
0833	17.99	0846	18.16					
0836	17.96	0952	18.01					
0839	17.96	0856	17.97					
		0858	17.96					
TEST STARTED:	0839 and stop at 0841 restart at 0859							
TEST STOPPED:	0934							
RISING TEST (SLUG OUT)		TEST No. : 10	REF. = 0					
TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	
TEST STARTED:	0934							
TEST STOPPED:	1020							
NOTES:	DTW — depth to water TD — total depth XD — transducer reading (ft above the probe)				P.D. 0.0 ppm Troll 1160			
Type equipment	— In-Situ miniTROLL (0.72" OD)							
* the slug was broken and fallen into the well. ∴ stop the test and set up another one. 202mw10r.bn 202mw10f.bn      * soft bottom								



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# SLUG TEST FORM

DATE: 11/27/01

PROJECT NAME: FTMA		PROJECT No.: 774645					
		COST CODE : 11120300					
WELL No.: R5R-202 - MW 11		WELL LOCATION : Range 1					
INITIAL MEASUREMENT (PRIOR TO THE TEST)							
TIME	DTW (ft)	CASING DIAMETER (in)	TD (ft)				
1304	71.1	4	132.2				
FALLING TEST (SLUG IN)		TEST No. : 7	REF. = 0				
TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)
1308	17.36						
1310	17.36						
1312	17.36						
TEST STARTED: 1312							
TEST STOPPED: 1324							
RISING TEST (SLUG OUT)		TEST No. : 8	REF. = 0				
TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)
TEST STARTED: 1324							
TEST STOPPED: 1344							
NOTES: DTW — depth to water TD — total depth XD — transducer reading (ft above the probe)				PDI 0.0 ppm TSD 11 4769 202 mw u.f. bin			
Type equipment — In-Situ miniTROLL (0.72" OD)							



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# SLUG TEST FORM

DATE: 11/12/01

PROJECT NAME: FTMA		PROJECT No.: 774645						
		COST CODE : 11120300						
WELL No.: RJR - 202 - MW 14		WELL LOCATION: Range J						
INITIAL MEASUREMENT (PRIOR TO THE TEST)								
TIME	DTW (ft)	CASING DIAMETER (in)	TD (ft)					
1220	58.4	4	$\approx 169.7$					
FALLING TEST (SLUG IN)		TEST No. : 15	REF. = 0					
TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	
1230	35.48							
1231	35.48							
1232	35.48							
TEST STARTED:	1233							
TEST STOPPED:	1242							
RISING TEST (SLUG OUT)		TEST No. : 16	REF. = 0					
TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	
TEST STARTED:	1242							
TEST STOPPED:	1251							
NOTES:	DTW — depth to water TD — total depth XD — transducer reading (ft above the probe)							
Type equipment	In-Situ miniTROLL (0.72" OD)							
TD (6 ps) 167 + stick up 2.7								
202 MW 14 f. bin								
202 MW 14 r. bin								



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## SLUG TEST FORM

DATE: 11/27/01

PROJECT NAME: FTMA		PROJECT No.: 774645						
		COST CODE : 11120300						
WELL No.: RJR - 202 - MW15		WELL LOCATION : Range ✓						
INITIAL MEASUREMENT (PRIOR TO THE TEST)								
TIME	DTW (ft)	CASING DIAMETER (in)	TD (ft)					
0908	72.2	4	138.5					
FALLING TEST (SLUG IN)		TEST No. : 3	REF. = 0					
TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	
0922	19.27							
0925	19.27							
0927	19.27							
TEST STARTED:	0928							
TEST STOPPED:	0939							
RISING TEST (SLUG OUT)		TEST No. : 4	REF. = 0					
TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	
TEST STARTED:	0939							
TEST STOPPED:	0952							
NOTES:	DTW — depth to water TD — total depth XD — transducer reading (ft above the probe) Type equipment — In-Situ miniTROLL (0.72" OD)				PID 0.0 ppm 10011 4769 * soft bottom 202 mw15 f. bin 202 mw15 r. bin			



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# SLUG TEST FORM

DATE: 11/12/01

PROJECT NAME: FTMA		PROJECT No.: 774645					
		COST CODE : 11120300					
WELL No.: RJR - 202 - MW 22		WELL LOCATION: Range J					
INITIAL MEASUREMENT (PRIOR TO THE TEST)							
TIME	DTW (ft)	CASING DIAMETER (in)	TD (ft)				
1002	70.65	4	$\approx 127.5$				
FALLING TEST (SLUG IN)		TEST No. : 5	REF. = 0				
TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)
1009	15.78						
1013	15.79						
1016	15.78						
TEST STARTED: 10 16							
TEST STOPPED: 11 22							
RISING TEST (SLUG OUT)		TEST No. : 10	REF. = 0				
TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)
TEST STARTED: 11 22							
TEST STOPPED: 1358							
NOTES: DTW --- depth to water TD --- total depth XD --- transducer reading (ft above the probe)				P.D. 0.0 ppm troll 4749			
Type equipment --- In-Situ miniTROLL (0.72" OD)							
TD using the TD (bigs) + stick up 2.5'							
202 mw 22 f. bin							
202 mw 22 r. bin							



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## SLUG TEST FORM

DATE: 11/27/01

PROJECT NAME: FTMA		PROJECT No.: 774645					
		COST CODE : 11120300					
WELL No.: RJR-202 - NW 27		WELL LOCATION: Range J					
INITIAL MEASUREMENT (PRIOR TO THE TEST)							
TIME	DTW (ft)	CASING DIAMETER (in)	TD (ft)				
1100	66.6	4	≈ 95				
FALLING TEST (SLUG IN)		TEST No. : 13	REF. = 0				
TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)
1111	16.14						
1114	16.13						
1116	16.15						
1119	16.16						
TEST STARTED:	1119						
TEST STOPPED:	1149						
RISING TEST (SLUG OUT)		TEST No. : 14	REF. = 0				
TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)
TEST STARTED:	1149						
TEST STOPPED:	1208						
NOTES:	DTW — depth to water TD — total depth XD — transducer reading (ft above the probe) Type equipment — In-Situ miniTROLL (0.72" OD)				P.D. 0.0 ppm fswl 1160 <del>is 40'</del> on top of the sediment		
	202NW 27 f. bin 202NW27r. bin						



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# SLUG TEST FORM

DATE: 11/12/01

PROJECT NAME: FTMA		PROJECT No.: 774645					
		COST CODE : 11120300					
WELL No. : RJR-202-MW 28		WELL LOCATION : Range J					
INITIAL MEASUREMENT (PRIOR TO THE TEST)							
TIME	DTW (ft)	CASING DIAMETER (in)	TD (ft)				
1036	67.6	4	≈ 777.5				
FALLING TEST (SLUG IN)		TEST No. : 11	REF. = 0				
TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)
1043	18.91						
1045	18.91						
1046	18.92						
TEST STARTED:	1046						
TEST STOPPED:	1058						
RISING TEST (SLUG OUT)		TEST No. : 12	REF. = 0				
TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)	TIME	(XD) (ft)
TEST STARTED:	1058						
TEST STOPPED:	1108						
NOTES: DTW — depth to water TD — total depth XD — transducer reading (ft above the probe) Type equipment — In-Situ miniTROLL (0.72" OD)				PPD 0.0 ppm frall 1160			
202 MW 28 f. bin 202 MW 28 r. bin							

**ATTACHMENT II**

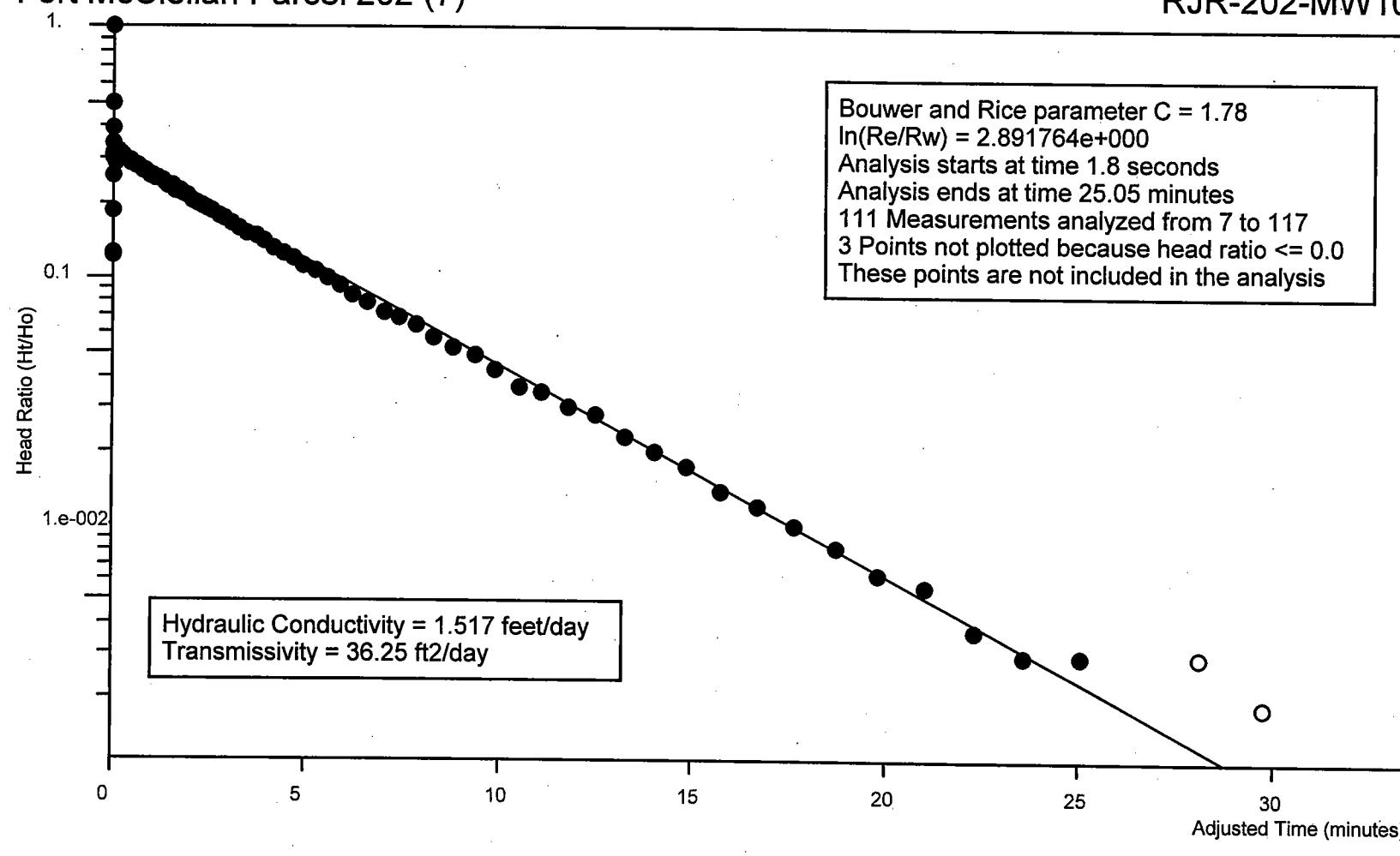
**TIME VERSUS WELL RECOVERY GRAPHS**

# Falling Head Test 11/27/01

Fort McClellan Parcel 202 (7)

## Bouwer and Rice Method

RJR-202-MW10

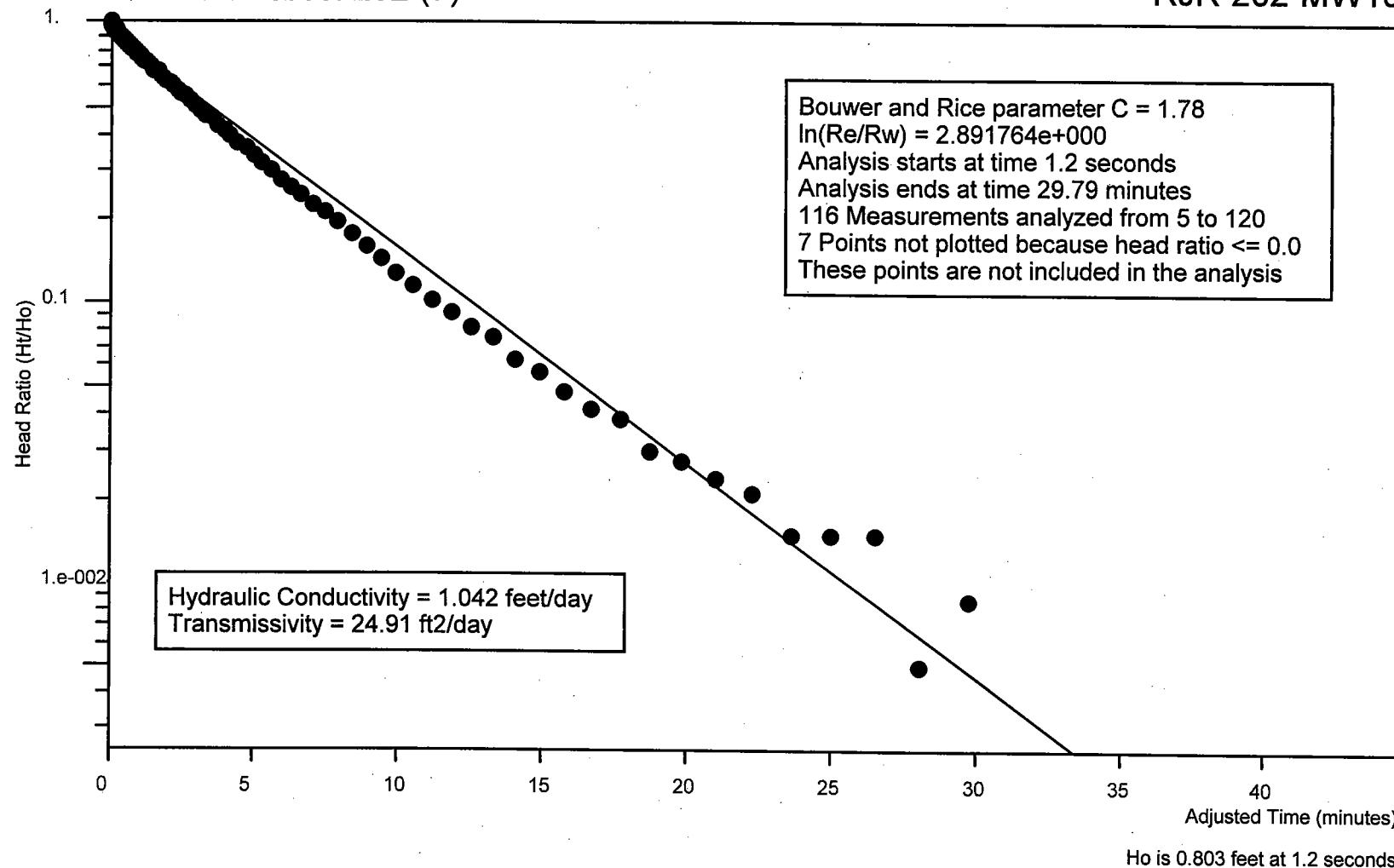


## Rising Head Test 11/27/01

Fort McClellan Parcel 202 (7)

## Bouwer and Rice Method

RJR-202-MW10

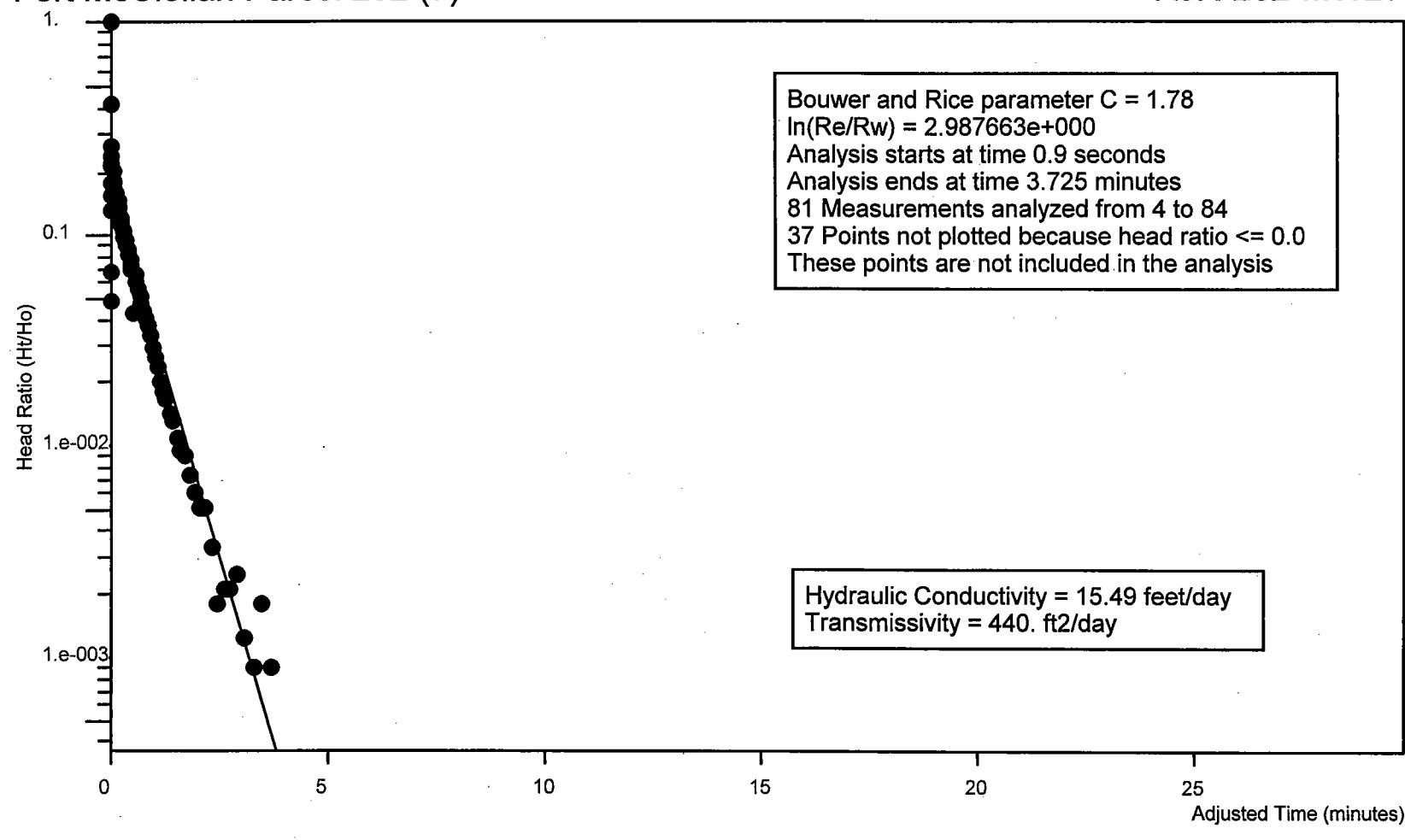


## Falling Head Test 11/27/01

Fort McClellan Parcel 202 (7)

## Bouwer and Rice Method

RJR-202-MW27

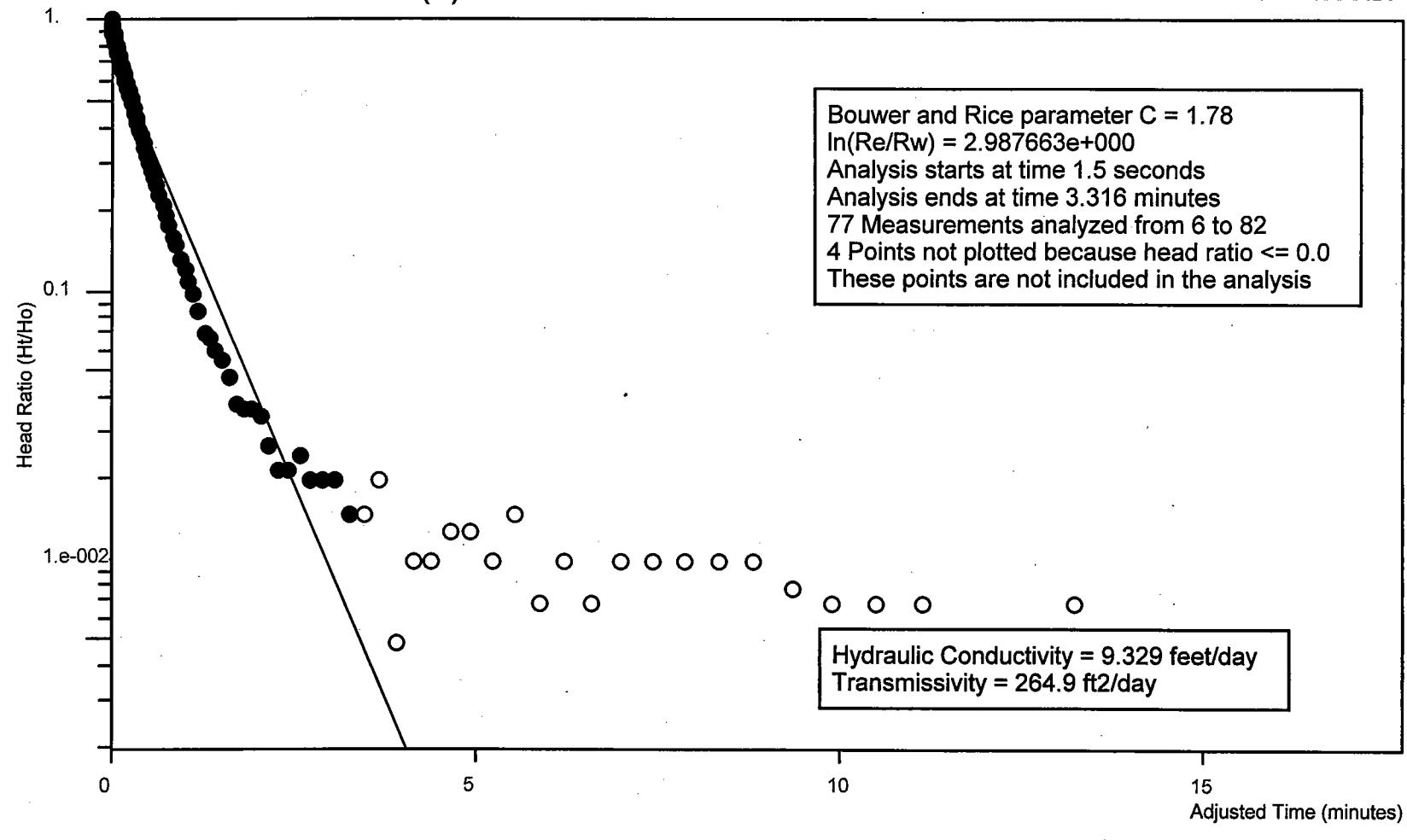


## Rising Head Test 11/27/01

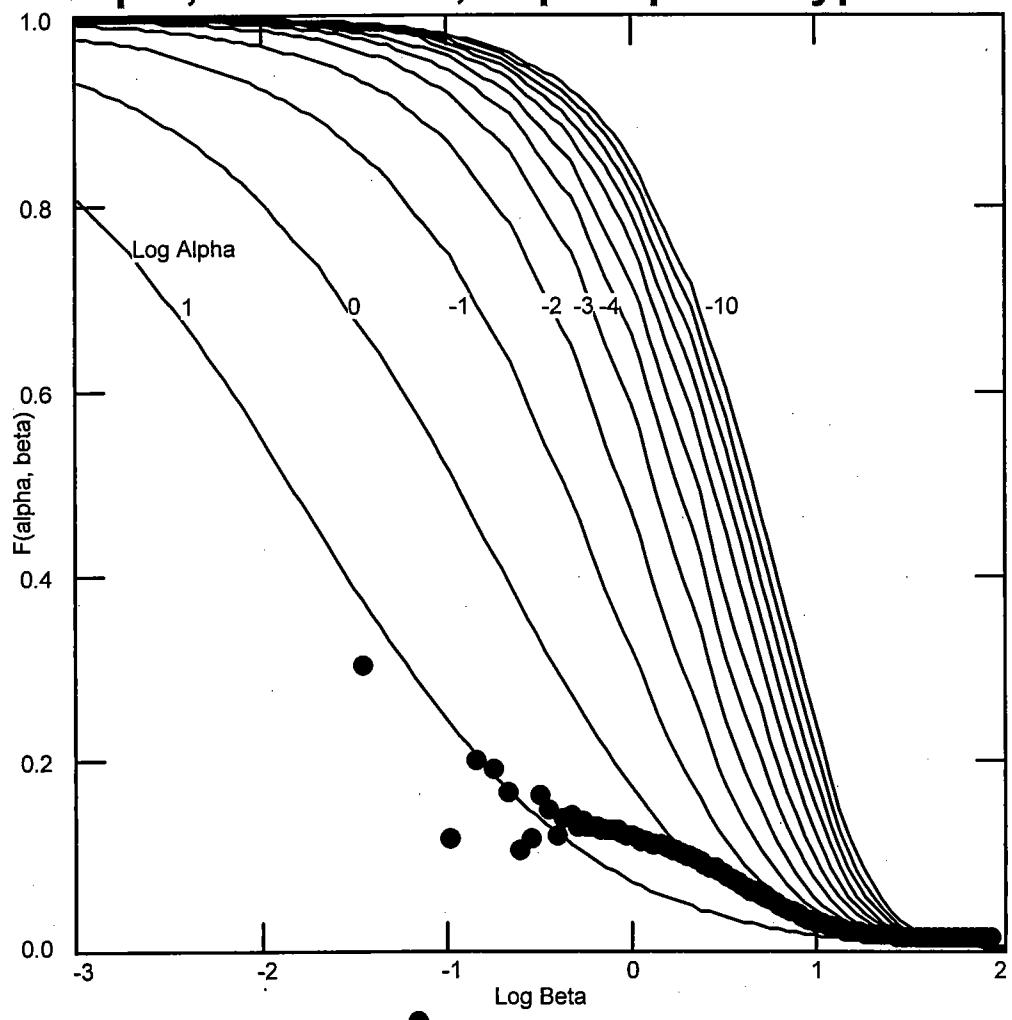
Fort McClellan Parcel 202 (7)

## Bouwer and Rice Method

RJR-202-MW27



## Cooper, Bredehoeft, Papadopoulos Type Curve

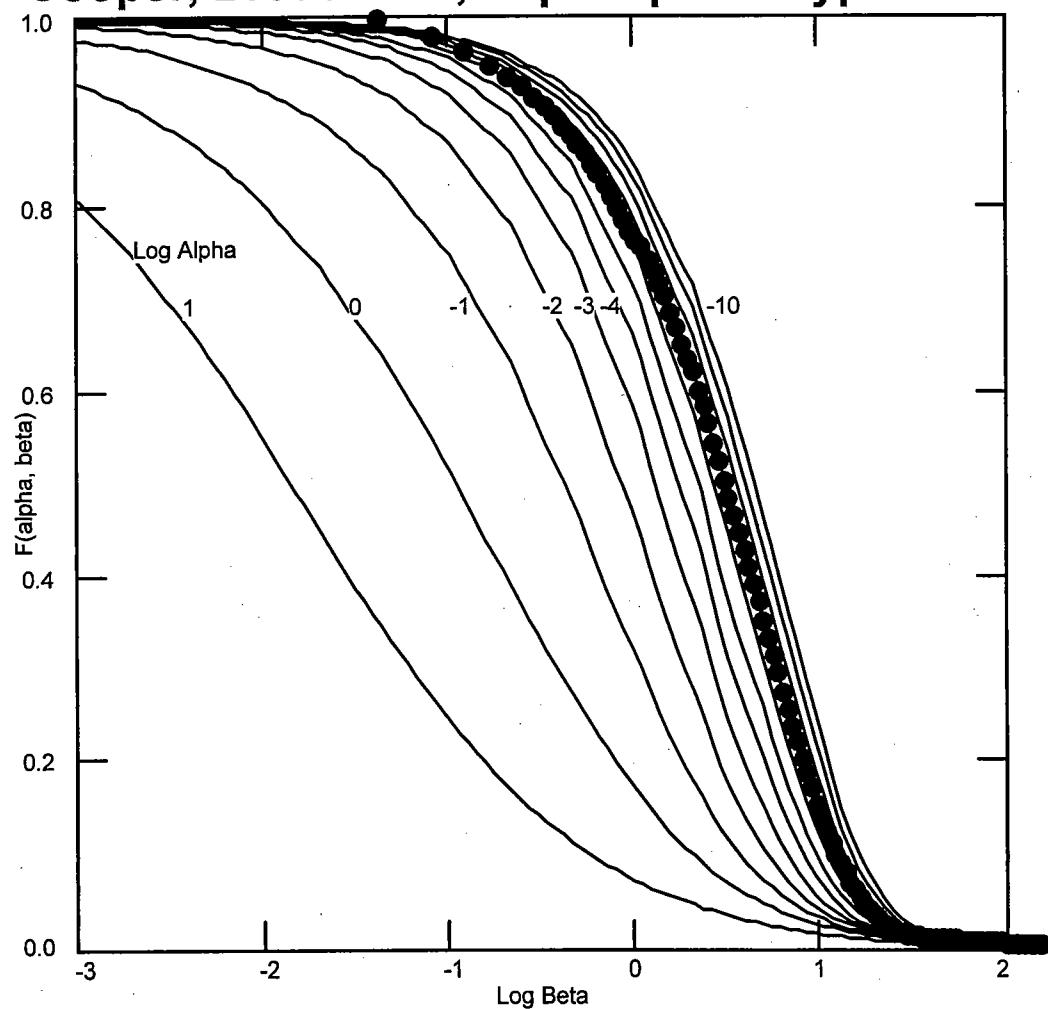


Well RJR-202-MW11

$\log \beta = 2.777$   
 $F(\alpha, \beta) = 0.5155$   
  
Transmissivity  
166.3 ft<sup>2</sup>/day  
  
Hydraulic Conductivity  
2.969 feet/day  
  
 $\log(\alpha) = -1.$   
Storativity = 1.6e-002

Fort McClellan  
Parcel 202 (7)  
11/27/01

## Cooper, Bredehoeft, Papadopoulos Type Curve



Well RJR-202-MW11

$\log \beta = 2.855$   
 $F(\alpha, \beta) = 0.5062$

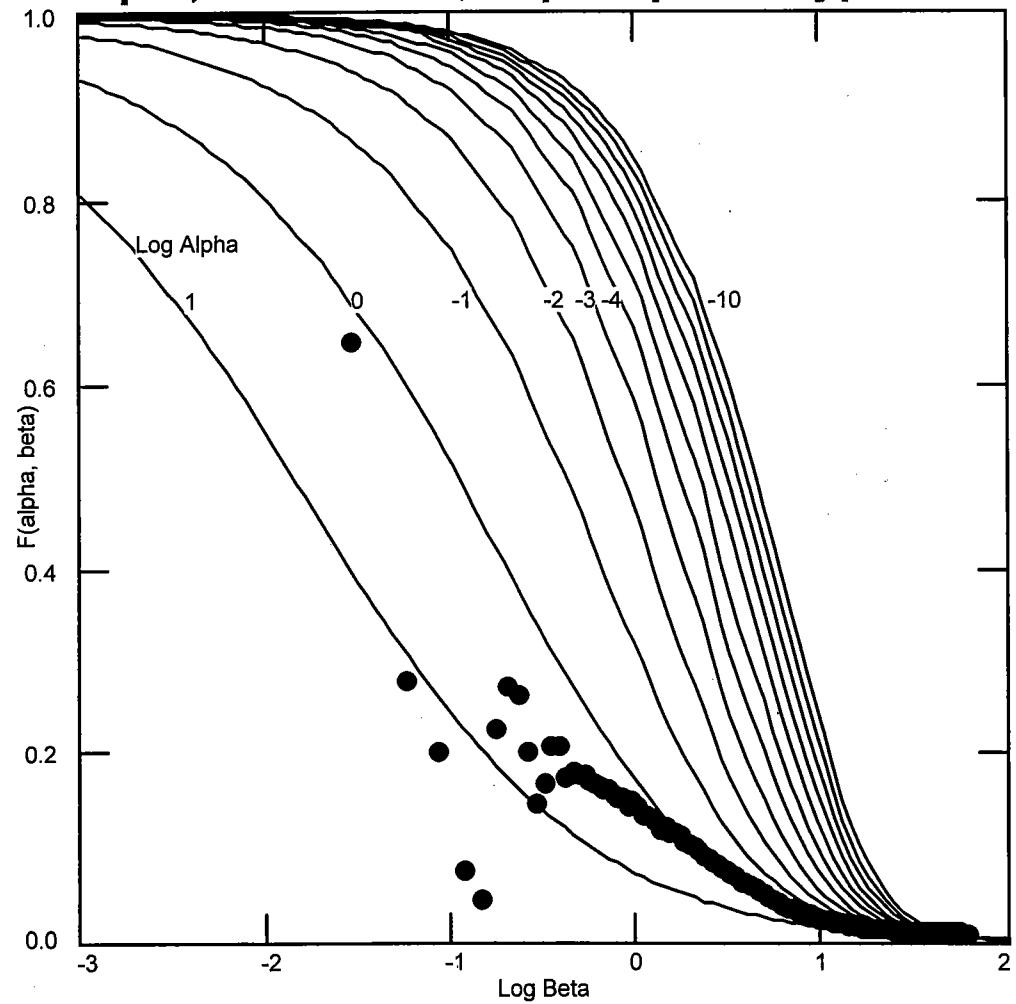
Transmissivity  
198.7 ft<sup>2</sup>/day

Hydraulic Conductivity  
3.548 feet/day

$\log(\alpha) = -3.$   
Storativity = 1.6e-004

Fort McClellan  
Parcel 202 (7)  
11/27/01

## Cooper, Bredehoeft, Papadopulos Type Curve

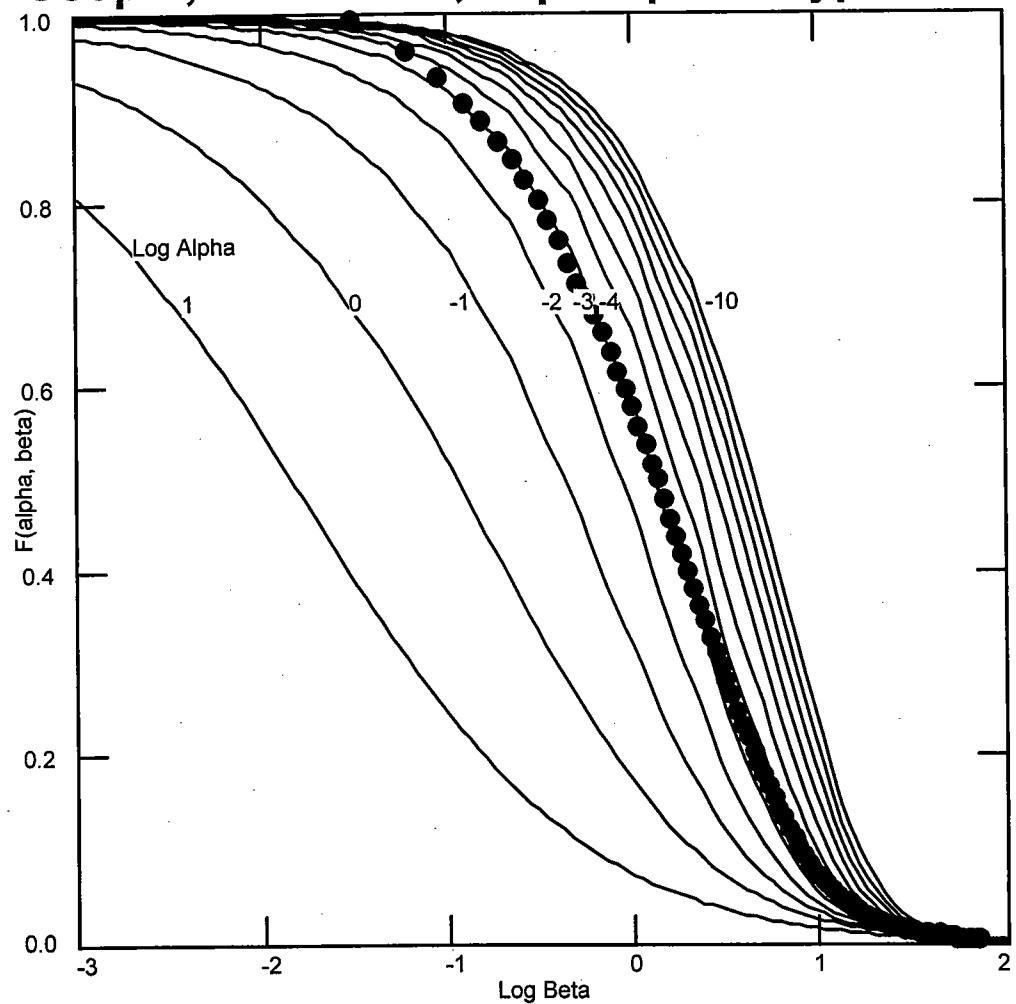


Well RJR-202-MW15

log Beta = 2.7  
 $F(\alpha, \beta) = 0.5093$   
Transmissivity  
139.1 ft<sup>2</sup>/day  
Hydraulic Conductivity  
7.323 feet/day  
 $\log(\alpha) = 0$ .  
Storativity = 0.2577

RJR-202-MW15  
11/27/01

## Cooper, Bredehoeft, Papadopulos Type Curve



Well RJR-202-MW15

$\log \beta = 2.715$   
 $F(\alpha, \beta) = 0.5062$

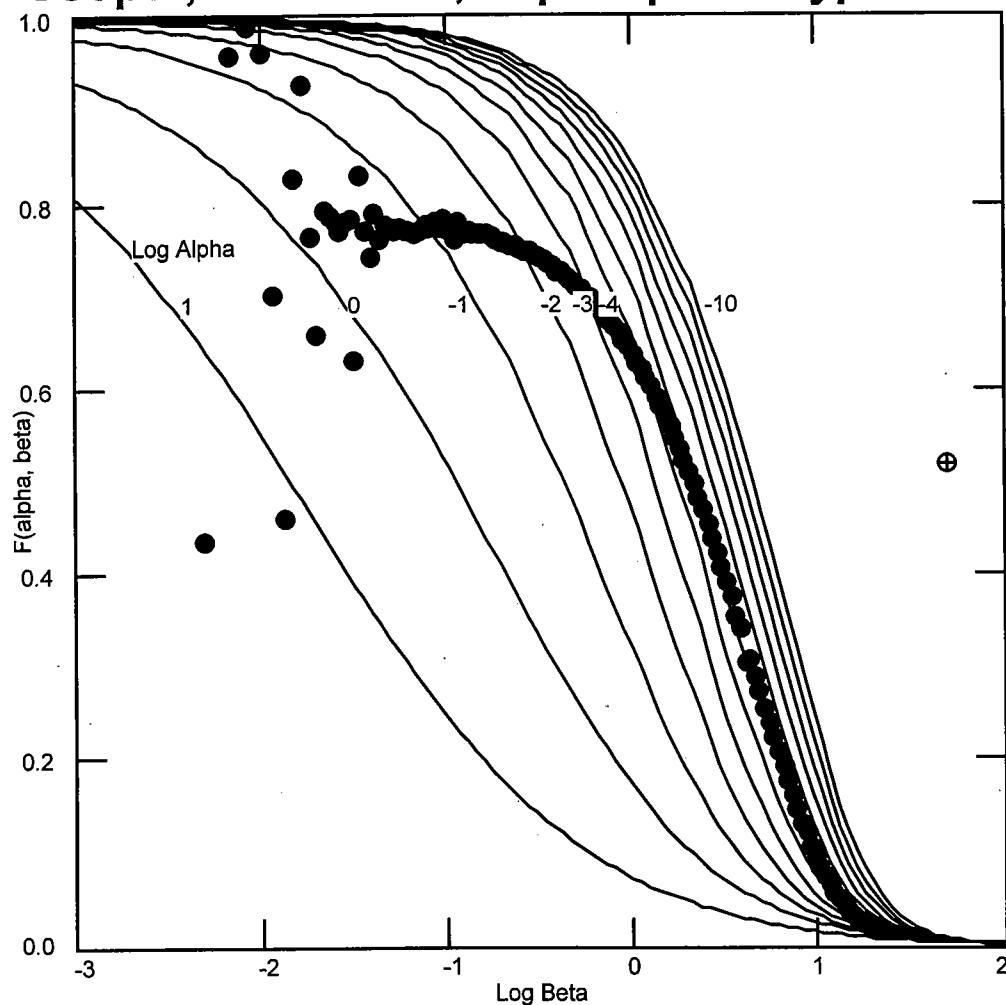
Transmissivity  
144.2 ft<sup>2</sup>/day

Hydraulic Conductivity  
7.588 feet/day

$\log(\alpha) = -3$ .  
Storativity = 2.577e-004

Fort McClellan  
Parcel 202 (7)  
11/27/01

## Cooper, Bredehoeft, Papadopoulos Type Curve



Well RJR-202-MW22

$\log \beta = 1.461$   
 $F(\alpha, \beta) = 0.5186$

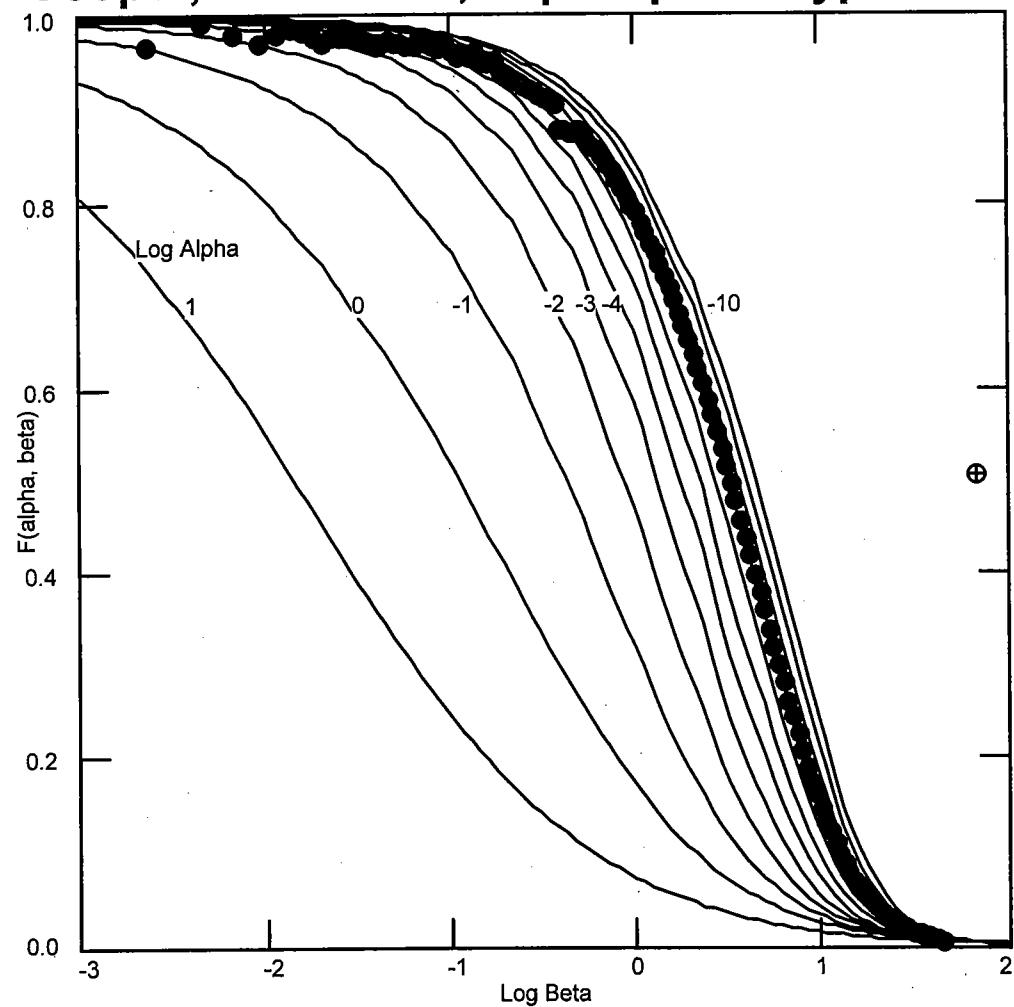
Transmissivity  
8.036 ft<sup>2</sup>/day

Hydraulic Conductivity  
0.1607 feet/day

$\log(\alpha) = -5$ .  
Storativity = 1.6e-006

RJR-202-MW22  
11/27/01

## Cooper, Bredehoeft, Papadopoulos Type Curve



Well RJR-202-MW22

log Beta = 1.601  
 $F(\alpha, \beta) = 0.5062$   
  
Transmissivity  
11.07 ft<sup>2</sup>/day  
  
Hydraulic Conductivity  
0.2215 feet/day  
  
 $\log(\alpha) = -3.$   
Storativity = 1.6e-004

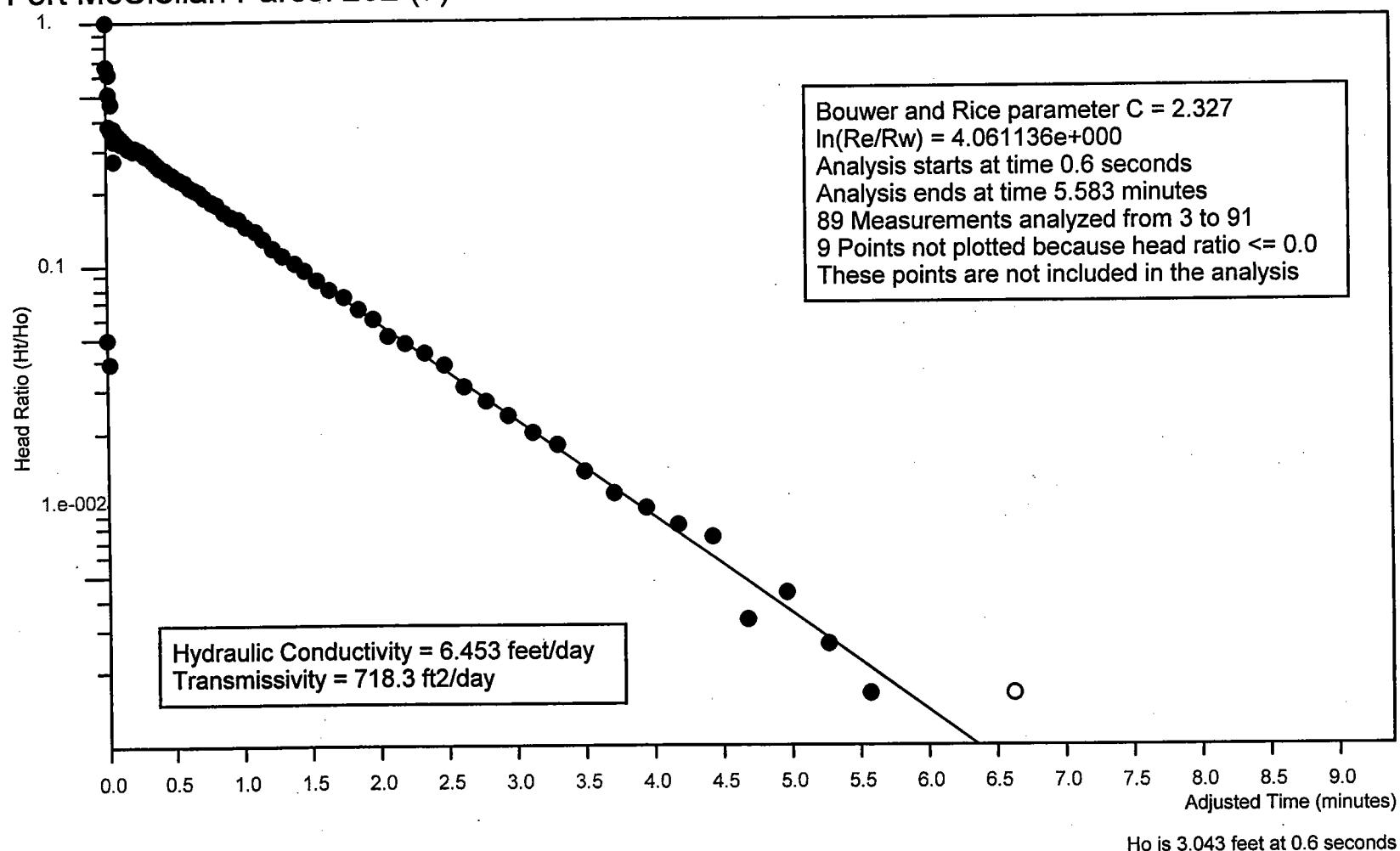
Fort McClellan  
Parcel 202 (7)  
11/27/01

## Falling Head Test 11/27/01

Fort McClellan Parcel 202 (7)

## Bouwer and Rice Method

RJR-202-MW14

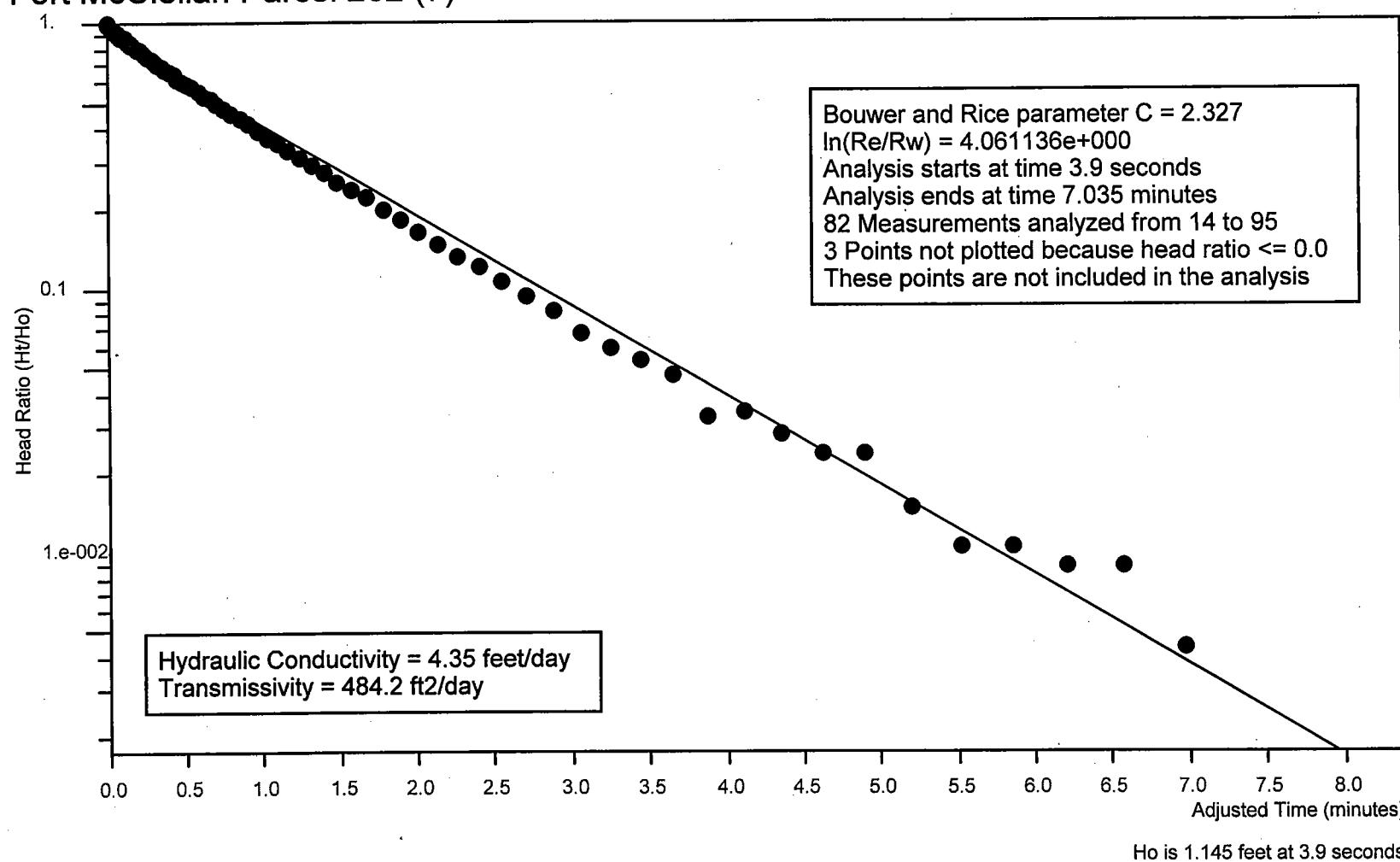


## Rising Head Test 11/27/01

Fort McClellan Parcel 202 (7)

## Bouwer and Rice Method

RJR-202-MW14

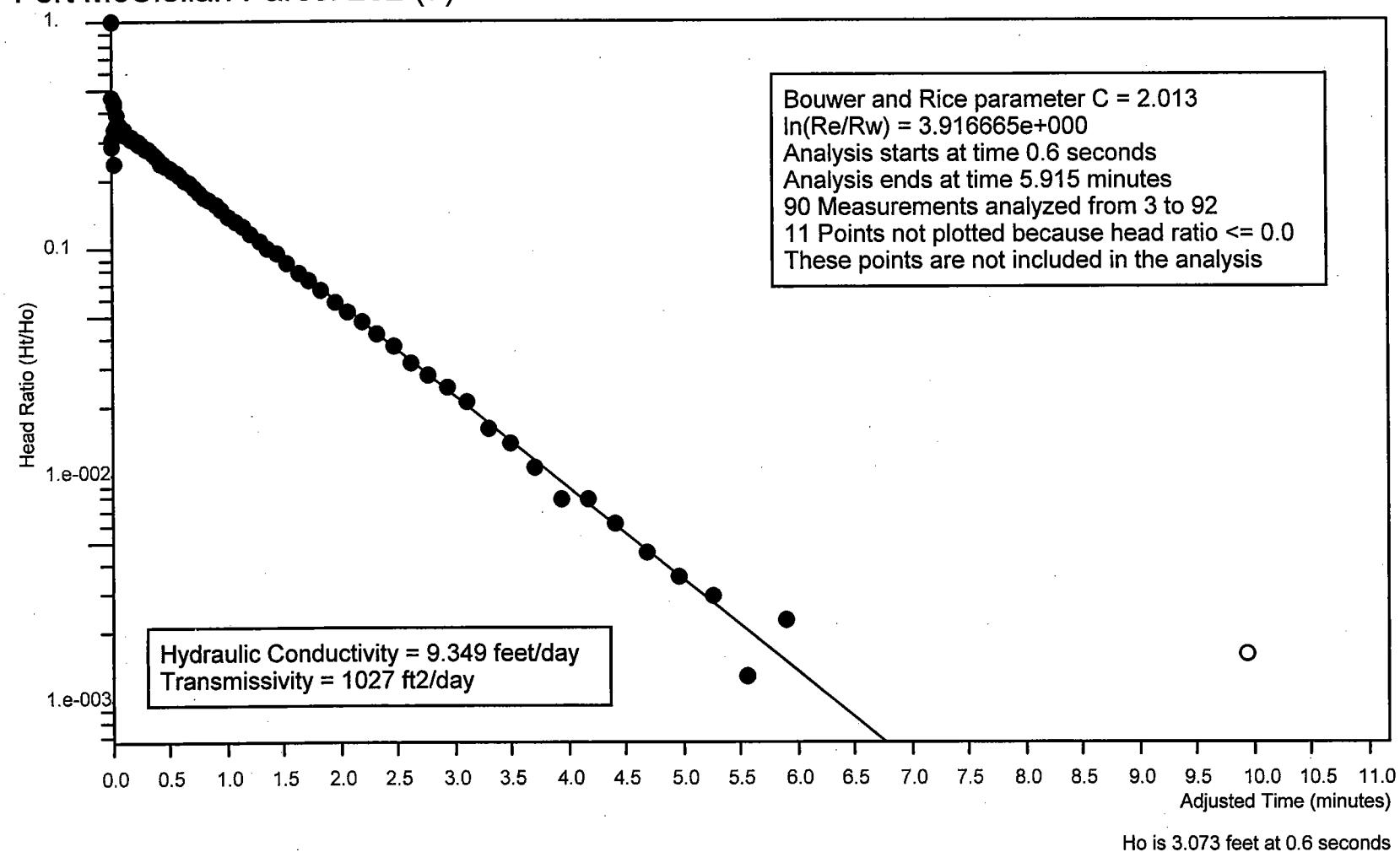


## Falling Head Test 11/27/01

Fort McClellan Parcel 202 (7)

## Bouwer and Rice Method

RJR-202-MW28



## Rising Head Test 11/27/01

Fort McClellan Parcel 202 (7)

## Bouwer and Rice Method

RJR-202-MW28

